

# **small air forces observer**

**vol. 23 no. 4 (92)  
December 1999**

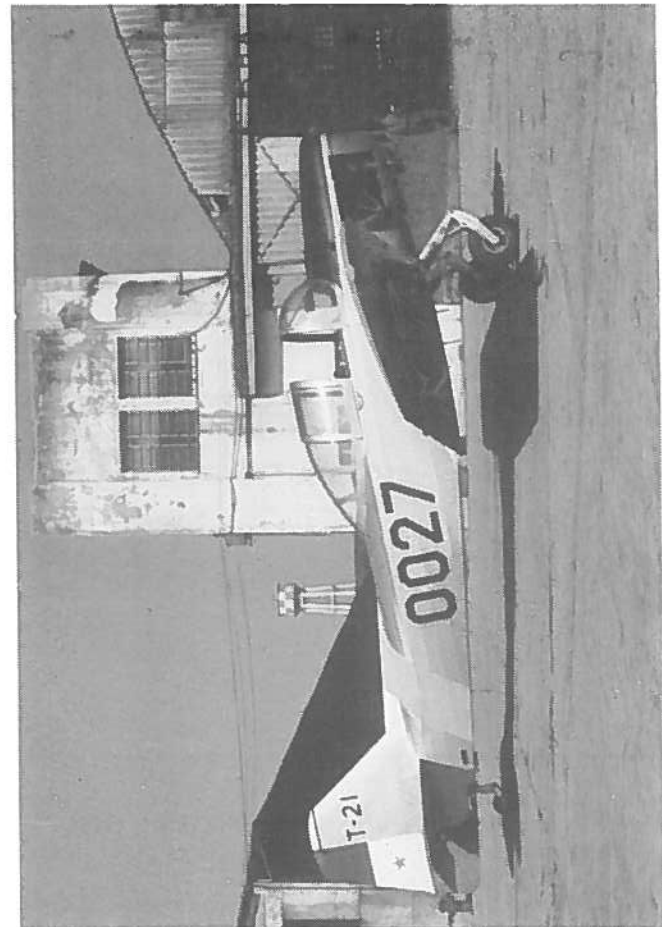
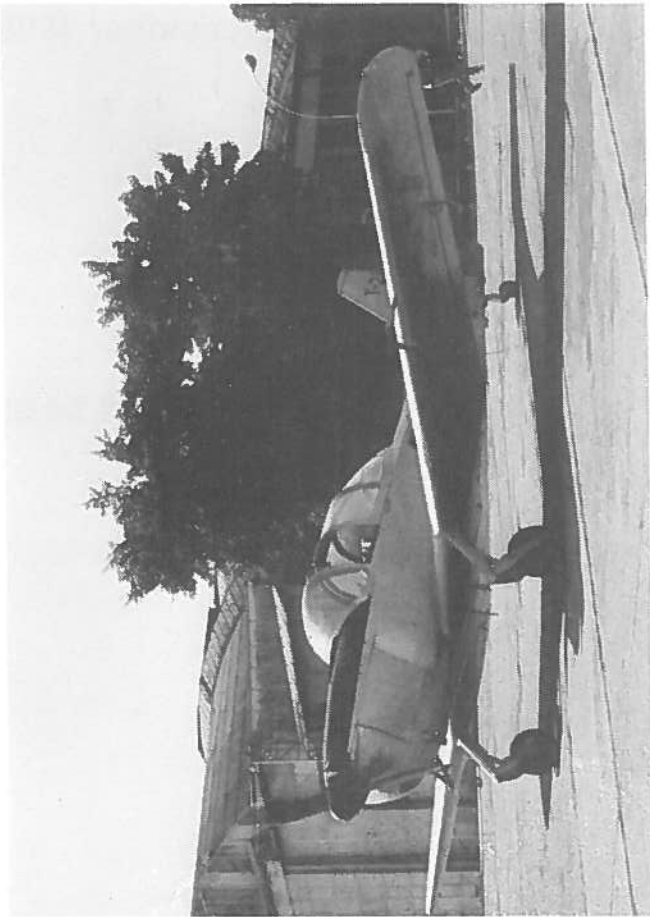
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**Ecuadorean Kfir & Mirage F1 Kill Markings  
Royal Yugoslav Hurricanes  
Paraguayan Fokker T-21  
RNZAF Short Singapore  
Høver MF 11  
Macchi M.18**

**vol. 23 no. 4 (92)**

**December 1999**



# SMALL AIR FORCES OBSERVER

## The Newsletter of the Small Air Forces Clearing House

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**SAFO EDITORIAL POLICY:** The purpose of the SAFCH is to "promote interest in the history and modeling of the aircraft of the smaller countries". In support of this goal, the SAFCH encourages international cooperation in researching aviation history, both military and civil, from all periods of time, and for all the smaller countries. In return for this support, members are asked to submit occasional progress reports for publication in the SAFO. While the final results should appear in the most prestigious publication possible, it is requested that the SAFCH be mentioned (with address) in the article and that SAFO be afforded the

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**COVER COMMENTS:** The Fokker T-21 serial 0027 "preserved" as a gate guardian in the National Institute of Civil Aeronautica in Luque, near Asunción, Paraguay, introduces an article on the unhappy story of the use of this little-known trainer by the Paraguayan Air Force. See page 129. (Photo by Antonio Luis Sapienza)

**LAST CHANGE SALOON:** To help clear the shelves, a few titles from the Estate Sale will be offered each issues. If they are not sold by the time the next issue is published they will be tossed out. These are free, you just pay the postage. If you need specific issues, write for quote. Military Modelling: 35 issues 1971-77. Modelworld: 2 issues 1972. Model Engineer: 8 issues 1981-82. Scale Modeler: 60 issues Vol. 2-14.

### -wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-wants&disposals-

Just before their demise, Tally Ho! decals sent me a number of decals packets for their La-9/11. Unfortunately, they made a mistake and these packets contained only the instructions - the decals were omitted. These 3-page instructions contain a number of 3-view drawings for La-9 and La-11 in Soviet, North Korean, and Chinese markings. With kits now available for these last of the Lavochin piston-engine fighters, I thought some of our readers would like to add these drawings to their files. They are free, while they last. USA members send a 1st-class stamp. Non-USA member wanting these drawings can add the cost of air-mail postage (\$0.60) to their renewal subscription form.

"Has anyone experimented with using decal paper in color printers? Any tips on which printer works best and if color prints as well as black and white? With current scanner technology, I thought this might be a way to make decals that are not currently available commercially. Maybe not the same quality, but better than nothing.

"Second, I am looking for information on aircraft exported from Czechoslovakia in the 1920's and 30's. Were they usually exported in Czech military colors, and if so, what was typical? I am specifically thinking of the Letov S-20. I have the Lithuanian

side of the story, which is that they most likely had Czech colors on delivery. Thought I would check the other side before I apply my final coat of paint." Ed Vaitones (SAFCH #1412), 16 Berry Court, Milford, NH 03055. E-mail: ecvaitones@juno.com

"Wanted: At least three sets of Turkish Air Force decals from PM Models' #0203 F-5A, #0294 F-5B, and #0205 T-38A, for use on models of Peruvian AF Fitter F, Fitter J, and Fulcrum A. Also the front-of-intake tiny "tiger" for Fitter-F fin squadron insignia. (The THK and PAF insignia are identical. If Turkey and Peru ever go to war with each other, the only way their air forces could IFF would be by the type of aircraft.) Also needed are at least three sets of Argentine decals from PM Models' #0207 Mirage/Dagger for use on Curtiss III/Hawk 75 models.

Dan Katz (SAFCH #1512), 15780 NE 15th Court, North Miami Beach, FL 33162-5616.

"Several years ago I acquired a wooden propeller. I didn't realize its value until a friend from Britain visited and was amazed at the propeller and its good condition. He estimates it is circa 1917-25. The propeller is approximately 8 feet long and the tips are covered in beautiful copper caps about 18

inches long. The diameter of the center hole is 2.5 inches and it is surrounded by 8 bolt holes. Stamped on the front are, 'R 4230 8" x 5'3"' and '2 D5000'. The reverse side is stamped 'U110' and 'R4117'.

"As my wife has decided once again to re-decorate, I'm afraid it may no longer have a home in my living room. If anyone is interested in researching or acquiring this propeller, please contact me at the address below."

Tony Dioltalevi, 2450 Widgeon Dr., Clarksville, TN 37042, USA. Telephone: (931) 920-3668. E-mail: TonyDio@aol.com.

"Wanted: Information and photographs (or photo copies) of Breguet 'Atlantic'/'Atlantique' in French, Dutch, Pakistani, and German service. I will pay cost of reproduction and mailing."

Olaf Bichel (SAFCH #1475), Forggenseestrasse 18, D-18539 Munchen-Giesing, Germany.

Wanted: The current address of former SAFCH member Ovidiu Man, formerly of Romania, but living in Canada since 1994. Anyone with information on his whereabouts please contact the Editor and Jean Yves Goffi, Residence Vallon St. Hilaire, Bat 6, Rue de la Petite Porte, F-76000 Rouen, France.

## AUSTRALIA

**AUSTRALIAN PLASTIC MODELLERS ASSOCIATION** (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues sea mail A\$27; air mail A\$30). 3/99 (28 pages) "Ikarus IK-2" 3 pages including two 2-view drawings. "North American B-25 Mitchell" 14 pages including 25 side-view drawings [RAAF (3), RAF (3), & Soviet (1)], 2 pages of sketches of interior and exterior details, and survey variants and kits. "Curtiss P-40K Kittyhawk III" 2 pages including 6 side-view drawings [RAF (3) & SAAF (1)]. "Mighty Hunter - 1" 4 pages on Hunter Mk58 with the Patrouille Suisse including 3 side-view drawings and top and bottom views. Side-view drawings: Egyptian Meteor F-4, Tunisian F-5E, RAAF F-18B Hornet, UAAF Nakajima Ki-49, & Ju 86 delivered to Australia as D-AGEY.

## AUSTRIA

**OFH NACHRICHTEN** (Oesterreichische Flugzug Historiker, Pfenniggeldf. 18/2/14, A-1160 Wien. Write for free sample.) 20-Year (77/97) Index available. 3/99 (36 pages) "Flying Bull B-25" 8 pages including 7 photos and history of War Bird B-25J N6123C. "Hubschrauber aus Obergrafendorf?" 3 pages including 2 photos of light helicopter. "Technikzentrum Wiener Neustadt Museum" 6 pages including list of aircraft and 4 photos (Etrich Taube, Berg D.I, and Mg 192 & SG 38 gliders).

## CANADA

**RANDOM THOUGHTS** (IPMS Canada, Box 626, Stn. B, Ottawa, Ontario K1P 5R7; 6 issues for US \$24.00 in US \$26.00 elsewhere). 26/3 (24 pages) "Ivy League: Harvard, Yale and Texan" 7 pages on the differences among versions including drawings, table, and 4 side-view drawings (2 USAAF BT-14 and RCAF & Luftwaffe Yale). "1999 Canadian Military Modeling Exposition: Report" 8 pages including 8 photos. [Editor's note: Hey guys, I'd would get a better appreciation of the models in the photos if you would include the scale in the caption.]

## DENMARK

**NYT** (IPMS Denmark, c/o Bjorn Jensen, Rosenvaegets Alle 6, 2100 Kobenhavn 0; 4 issues for 90 Dkr surface, 100 Dkr airmail). Each issue includes a two-page English summary. #83 (40 pages) "Building a Mercury-Redstone Rocket" 7 pages including 3 photos and numerous sketches. "F-14 Tomcat in Air-to-Air Combat" 2 pages including 3 photos. "B-50A Superfortress" 3 pages including 3 photos. Color photos: Rangoon Museum Burmese Spitfire XV and Royal Navy & Bundesmarine Lynx. #84 (40 pages) "One Small Step ...." 8-page review of Saturn/Apollo kits including 9 photos and numerous sketches. "Eurocopter AS-532 Cougar" 2 pages including 3 photos of Dutch machine. "Styrenus Consumptiverous" a 2-page essay on an animal that lives in carpets and devours small bits of styrene and brass that fall to the floor. Color photos: Danish F-104 and C-54.

## ENGLAND

**IPMS MAGAZINE** (Ernie Lee, 51 Ball Road, Hillsborough, Sheffield, South Yorkshire S6 4LZ, 6 issues for £20.00 (US subscription agent: Wise Owl Publications, 4314 West 238th St., Torrance, CA 90505)).

5/99 (48 pages) "Air Operations over the Philippines" (Part 2) 2 pages including 5 side-view drawings (Claude, Zeke, Babs, & Betty). "USS Enterprise NCC1701" 5 pages including 9 photos, numerous sketches, and scale drawings. "Jensen's Interceptors: Part One: Hawker Tempest II" 4 pages including 6 photos of model and a side-view drawing. "Hudson Feedback" one page including drawings of pilot's controls and cutaway drawing.

**The Catalina News** (Joan Watts, The Catalina Society, 24 Batts Hill, Reigate, Surrey, RH2 0LT England. One year £15.)

#42 September 1999. (24 pages) "Catalina Survey Flight - Concluded" 2 pages. "The Catalinas of Cathy-Pacific Airways & Macau Air Transport" 6 pages including 4 photos. "PH-CAT on the Move" 2 pages including 2 photos. "World Catalina News" 2 pages including 3 photos.

**PLASTIC KIT CONSTRUCTOR** (PAMAG Publications Ltd., 3 Lowfield Court, Old Forge Business Park, Sark Road, Heeley, Sheffield, S2 4HG; 4 issues £18.00. In USA/Canada order from J.J. Daileida, 4314 West 238th St., Torrance, CA 90505; since exchange rates fluctuate write Joe for current rates).

#58 Summer 1999 (32 pages) "Aeroclub's 1:48 scale Sea Venom FAW 22" 6 pages on building the kit including 18 photos of the model and 2 side-view drawings. "Close up: The Red Arrows' Gnats" 2 pages including 13 photos. "Royal International Air Tattoo 1998" 2 pages with 14 photos. "Sketch Pad: Nord M3292B" one-page of sketches. "Hindustan Aeronautics Ajeet" 2-page 1/48-scale multi-view drawing. "Dynavector De Havilland Hornet F3" 4 pages on building the 1/48-scale kit including 12 photos of the model. And, the usual plethora of wonderful kit reviews.

**SWEDISH AIRFORCE SIG** (Ted Burnett, 19 Tintagel Close, Parkside Grange, Cramlington, Northumberland, England NE23 0NZ. Subscription £4.00 UK, £6.00 Europe, \$16.00 USA. Include your SAFCH number).

#31 Summer 1999 (27 pages) "The HKP2 Alouette II: A Swedish Lark" 3 pages including a page of multi-view scale drawings. "Review of the Broplan PA-31 Navajo Vac-Formed Kit: 2 pages. "Accessories for Aircraft Operated by the Swedish Armed Forces (Etched Brass)" 3 pages. "The Last Flight of the Draken in the Swedish Air Force" one page. "Dolling up the Do.24" 3 pages including 3 side-view drawings (2 Swedish and one Soviet). "More on the SK 16 Texan/Harvard" 4 pages including 10 side-view drawings. "A Review of the Marivox 1/72 Scale de Havilland Vampire Mk I J28A" one page. "Italeri AS-532 Cougar/Super Puma" one page review.

## FINLAND

**IPMS-MALLARI** (IPMS Finland, PL 798, 00101 Helsinki 10; 6 issues \$20.00, no check accepted due to the high redemption costs).

#131 3/1999 (24 pages) "Polikarpov I-153" 8 pages including 6 photos. "Messerschmitt Bf 110 Zerstoror" (Osa 1) 8 pages including 3 photos.

**SUOMEN ILMAILUHISTORIALLINEN LEHTI** (InScale 72, Makelankatu 5B10, 00550 Helsinki; Europe \$30, elsewhere \$35; payment by International Postal Order or in cash; no cheques accepted because of high redemption rates). Each issue in-

cludes a 2-page English summary.

3/1999 (24 pages) "Finnish Air Corps Serials: 1922-27" one page including table, one photo, and one side-view drawing. "Folland Gnat Mk.1" (Osa 2) 4 pages including 6 photos. "Koolhoven FK.49A in Finnish Coast Guard Service" 4 pages including 5 photos and 2 side-view drawings. "Junkers F 13 crash-landed in middle of Helsinki" 3 pages including 2 photos. "Urho Lehtovaara: Mannerheim Cross Knight" 4 pages including 6 photos and two 3-view drawings of his MS-406. "Orlitsa: Imperial Russian Baltic Fleet Air Operations" 3 pages including 2 photos and map. "Personal Memoirs of Service with LLv 12" 2 pages including one photo.

## FRANCE

**Aero Journal**, Aero Editions, 50 bld Paul Valery, 32500 Fleurance, France. Complete English translation of the two leading articles. US\$ 40.00 including air mail for one year (6 issues). Visa and Mastercard accepted. E-mail: [aerjournal@infonie.fr](mailto:aerjournal@infonie.fr).

#9 Oct-Nov.99 (72 pages) "Le Glenn au combat" (2eme partie) 14 pages including 24 photos and 5 color side-view drawings describing the use of the Martin 167 by Free French forces in Aden, Chad, and the Atlantic Pockets. "La Fleet Air Arm (1939-45)" 19 pages including 19 photos, tables, a color 3-view drawings (Hellcat), and 18 color side-view drawings (Sea Gladiator, Skua, Roc, Seafox, Lysander, Fulmar, Buffalo, Goose, Maryland, Sea Hurricane, Albacore, Swordfish, Martlet, Sea Spitfire, Avenger, Beech Traveler, Seamew, & Kingfisher). "Changement de propriétaire" 2 pages with 15 color side-view drawings of a/c in "enemy" markings including Romanian MiG-3, Italian Hurricane, Finnish Po-2, Vichy Fulmar, Japanese P-40E, & Swedish P-51B. "Les as finlandais sur Morane" 6 pages including 9 photos and 4 color side-view drawings. "Sous le signe des Ustachis" 10 pages on the Croatian AF including 14 photos and 11 color side-view drawings (Bf 109, Fi 157, Fiat G.50, Macchi 202, Ikarus IK-2, MS 406, & Do 17Z). "Les as de l'aviation: L'avion le plus celebre de la Luftwaffe" 3 pages including 3 photos and color 3-view drawings of Helbig's Ju 88A. "Objectif Bakou" a 5-page description of the Franco-British June 1940 plan to bomb the Soviet oil-fields at Baku to prevent Soviet oil from going to Germany. "La chasse francaise 1939-45 (9): Le CG IV/2 Ile-de-France (No. 340 Squadron)" 6 pages including 5 photos, tables of victories, losses, etc., and 4 color side-view drawings (Spitfires).

#10 Dec.99-Jan 2000 (72 pages) "La liberation de la Corse" 11 pages including 9 photos, map of Corsica, 6 color side-view drawings (Spitfires & Do 217), and complete English translation. "Lea as de l'aviation: George Earl Preddy" 3 pages including 5 color side-view drawings (P-47 & P-51). "L'Ensign francais" 5 pages including 6 photos and 2 color side-view drawings of AW-27 Ensign in French markings. "Le Karas au Combat" 9 pages including 8 photos, color 3-view drawing, 4 color side-view drawings, and complete English translation of PZL-23 Karas in the September Campaign. "Les pays non-alignes" 3 pages with 10 color side-view drawings (Irish Anson, Swiss D-3801, Iranian Fury, Spanish He 112, Egyptian Spitfire, Portuguese Hurricane, Argentine Hawk 75 & Martin 139, Swedish J-22, and Turkish Baltimore) and one photos (Egyptian Gladiator). "Le 'Pret-Bail' en Amerique Latine" 16 pages including 21 photos, one color 3-view drawing (Mexican P-47), and 10 color side-view drawings (Guatemalan P-26,



Brazilian P-40N & P-47D, Chilean Douglas A-24 & AT-6D, Peruvian Northrop 8A-3P, Mexican OS2U Kingfisher, Cuban Aeronca L-3 & Grumman JRF Goose, and Uruguayan OS2U Kingfisher). "Une citadelle vulnérable" 6 pages on RAF Boeing Fortress I including 5 photos, 3 color side-view drawings, and complete English translation. "La chasse française 1939-1945 (10): Le CG I/3" 6 pages including 6 photos, 5 color side-view drawings (MS.406, D.520, & Spitfire), and list of bases, equipment, victories, etc.

**AVIONS: Toute l'Aéronautique et son Histoire** (LELA PRESSE, 29 rue Paul Bert, 62230 Outreau, France. 420F for 12 issues).

**#79 Octobre 1999** (64 pages) "Retros du mois" one page including 2 photos (Mexican O-E-1 & Fairchild PT-19). "Faisceaux italiens sur La Manche" 10 pages including 27 photos. "Les Nieuport-Delage de la série '39'" 4 pages including tables and 10 photos. "Les chasseurs PZL P-24 en Turquie" 7 pages including 27 photos and one color side-view drawing. "Le Morane-Saulnier MS 225 C1" (Sème partie) 15 pages including 33 photos, 2-page cutaway drawing, 2-page 1/72-scale multi-view drawing, and a color side-view drawing. "Vivre pour voler: Ivan Smirnov" (première partie) 4 pages including 12 photos and a color side-view drawing (Spad VII). "Un oiseau rare: Le Ju 290 espagnol" 4 pages including 8 photos. "Du nouveau sur les Hanriot H-323" 8 pages with 28 photos.

**#80 Novembre 1999** (64 pages) "Faisceaux Italiens sur la Manche" (2ème partie) 14 pages including 46 photos (5 in contemporary color) and 3 color side-view drawings (G.50, CR.42, & BR.20). "L'Hydravion-Ecole CAMS 30<sup>E</sup> de l'Aviation Maritime" 4 pages including 9 photos. "Les Aigles du Kaiser" 8 pages on German aircraft in German South-West Africa during WWI including 17 photos. "Retros du Mois" one page with 2 photos (Spanish Bristol F.2B and Bulgarian Aero A-304). "Les Avions Avro au Portugal" 6 pages including 13 photos and 6 color side-view drawings (Avro 504K & 548). "Le Groupe de Chasse III/6 en 1939/1945" (première partie) 8 pages including 19 photos (MS.406) and a color cover painting. "Ivan Smirnov" (deuxième partie) 8 pages including 21 photos (Imperial Russian aircraft and Dutch Fokker F.VIII and DC-3). "Le de Havilland DH 98A Dragon Rapid: Maquette multi-matériaux au 1/48<sup>ème</sup> de Aeroclub" 4 pages including 9 photos of model.

**#81 Décembre 1999** (64 pages) "Le III./Zerstörer Geschwader 26 dans la Campagne d'Afrique (1941/1943)" 11 pages including 25 color WWII photos and a color cover painting. "Les Morane-Saulnier MS 225 & 226 de la Marine" 10 pages including 28 photos. "L'Ansaldo A300 et son utilisation par l'Ae. Mi. Belge" 16 pages including 27 photos, 4 pages of 1/72-scale multi-view drawings, and 2 color side-view drawings. "Retros du Mois" one page with 2 photos (French DH 60M & Portugaise Auster D4). "Ioan Dicezaru" 6 pages on Romanian WWII Ace including 16 photos (Bf 109, P-11c, Hc 112, & Fleet 10). "L'Escadrille de Chasse de Nuit ECN 5/13 en 1939-1940" 8 pages including 18 photos (Potez 631). "Le Voisin 3: Maquette de Flashback au 1/72ème" 3 pages including 7 photos of model.

**JETS: Toute l'Aéronautique Moderne** (LELA PRESSE, 29 rue Paul Bert, 62230 Outreau, France. 420F for 12 issues).

**#46 Octobre 1999** (52 pages) Color photo: Chilean Navy Cessna O-2A. "Les SEM de landi" 5 photos including 11 photos of French Super Etendards

over Kosovo. "La Morsure du Cobra" 8 pages including 14 photos of Parkistani Bell Cobras. "le Garibaldi et son groupe aérien" 8 pages including 15 photos (AV-8B & Sh-3D). "Le retrait des A-7P portugais" 3 pages including 4 photos. "Naval Strike and Air Warfare Center" 7 pages including 12 photos. "JPO a l'ALAT: Le futur a déjà commencé" 7 pages with 13 photos of French helicopters.

**#47 Novembre 1999** (52 pages) Color photos: Argentine Army SA.315B Lama and Dominican Republic ENAer Pillan. "Visite à la Base d'Aéronautique Navale de Lanveoc-Paolmic" 6 pages including 11 photos (Alouette III, Lynx, & PBY). "Le Deuxième Air Show International en Bulgarie" 4 pages including 9 photos (Bulgarian MiG-29, Mi-2, Su-22, etc.). "Royal International Air Tattoo 99" 10 pages including 29 photos (Norwegian F-5, Dutch F-16, Turkish C-130, etc.). "Alize: Le vétéran de l'aviation embarquée fête ses 40 ans à la 6F" 7 pages including 13 photos and 9 unit badges. "Beauvechain 1999: Le 1<sup>ère</sup> Wing de la FAEB reçoit" 6 pages including 13 photos (Belgian Alpha Jet, Spanish CASA C-101, Swedish Viggen, Swiss F-5, Polish PZL 130 Orlik, Danish F-16, etc.). "USS Theodore Roosevelt: Un déploiement très guerrier" 7 pages including 16 photos.

**#48 Décembre 1999** (52 pages) "Les Frelons du Grand Nord" 7 pages on Canadian F-18 including 14 photos. "Crusader: dernières cartouches ou Pluton derniers obus" 7 pages of French F-8s including 24 photos. "Les Mirage IIIS: Bientôt la Fin!" 7 pages on Swiss Mirages including 16 photos. "La Force Aérienne de Combat à l'Aube du 21ème Siècle" 7 pages including 20 photos. "Visite à la Base d'Aéronautique Navale de Lanveoc-Paulmic" 6 pages including 12 photos. "L'Aviation Sloène & la 15e Brigade Aérienne de l'Armée Sloène" 6 pages including 11 photos (Bell 412, PC-9, L-410, PC-6, & Bell 206); a perfect color complement to the Blue Rider book (and decals) on Slovenian aircraft.

## GERMANY

**MITTEILUNGEN** (IPMS Germany, Bergengruenstrass 5-7, D-1000 Berlin 38; 12 issues DM 60.00 Europe, DM 65.00 USA, DM 70.00 Japan, DM 75.00 Australia).

**4-99** (40 pages) "Leutnant Heinz Ewald 'Esau'" 3 pages including 2 photos and 3-view drawings of his Bf 109G-6.

## ITALY

**JP-4** (JP-4, CP 1550, 50100 Firenze; L 27.000 Europe, L 30.000 elsewhere).

**#8 Agosto 1999** (100 pages) Color photos: Portuguese A-7; South Korean CAP 10; & Argentine AS.555. "La 'Roosevelt' in Adriatico" 6 pages including 19 photos. "L'Aeronautica del Bangladesh" 5 pages including map and 15 photos (MiG-21MF; Nanchang PT-6, FT-6, F-7, FT-7, & A-5; Cessna T-37, Bell 206L & 212, An-32, Mi-17, and L-39LZ).

**#9 Settembre 1999** (100 pages) Color photos: Aero Club Riga An-28 'YL-KAB'; Dubai Police Agusta A.109K2; Chilean AF S-70 'H02'; and Lithuanian AF An-26. "Gli Skyhawks di Singapore a Cazaux" 4 pages including 9 photos. "Base Aerea di Santa Cruz" 4 pages including 13 photos (Brazilian AMX, P-95 Bandeirilha, F-5E, & T-27 Tucano). "Un tesoro nelle Curili" 3 pages including 9 photos of derelict P-63s on an abandoned Soviet airfield in the Kuriles Islands.

**#10 Ottobre 1999** (100 pages) Color photos: Israeli F-16 and Russian LET L-410M. "RSV in guerra" 8 pages including 18 photos. "Gli ultimi 'Tango'

a Roma" 4 pages on G-91 'bone yard' including 9 photos. "Operazione 'Engadine'" 4 pages including 9 photos of RAF Tornados. "Addio al Corsair II" one page including 3 photos of Portuguese A-7P

## NETHERLANDS

**MODELBOUW IN PLASTIC** (IPMS-Nederland, PO Box 40082, NL-8016 DB Zwolle). Now with English captions and summary.

**3/99** (44 pages) "Building to the max met Max Decals" 2-page review of Max Decals including 4 photos (Irish Alouette III, CN-235, Chipmunk, & Provost). "Lockheed L-12 'Baby Electra'" 1-page review of Dekno kit including 3 photos of Dutch L-12.

## USA

**WWI AERO** (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$30.00 USA or \$30 overseas).

**#166 Nov 1999** (148 pages) "Mozhaiski/Jukovski" 3 pages. "Pilcher" 22 pages including 37 photos. "Friedrichshafen Raid, cont'd" 7 pages including 6 photos. "Sopwith Pup in Australia" 6 pages including 9 photos. "Spandau Machine Gun" 16 pages with numerous sketches. "Archiv" 8 pages including 7 3-view drawings (AEG, Rumpler, & Friedrichshafen). "Engines: The Birth of an Eagle" 6 pages including 2 photos and 3 pages of drawings. "Scandal: The ABC Dragonfly Engine" 9 pages including 8 photos and a page of drawings.

**SKYWAYS** (15 Crescent Rd., Poughkeepsie, NY 12601; 4 issues \$30.00 USA or \$30.00 overseas).

**#52 Oct. 1999** (84 pages) "Aeromarine Airways" 12 pages including 15 photos and a 3-view scale drawing of an Aeromarine Model 75 (modified Curtiss F-5L). "The Curtiss Kingbird" 11 pages including 22 photos and a scale 3-view drawing (USMC RC-1). "Osa and Martin Johnsons; Famous Sikorsky Flying Boats" (Part 5) 14 pages including 13 photos. "Reproductions and Restorations" 4 pages including 5 photos. "Oshkosh '99" 6 pages including 13 photos. "Identification Unknown" 3 pages including 9 photos and one 3-view drawing. "Cockpits: Curtiss Model 75 Hawk Fighter" 4 pages including 4 photos. "Details: Fairey Gordon" 6 pages including 8 photos, sketches, and a 3-view drawing. "Building my DH 9A Ninak" 2 pages including 2 photos of the 1/24-scale model.

**ESM 72** (Model-Aire International, PO Box 159, Olema, CA 94950. E-mail: maiesm72@aol.com. Quarterly. \$25.00 for four-issue volume. \$30.00 outside the USA).

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# The Royal Yugoslav Hurricanes

Sid Napier

The Hurricane Mk I was the first low-wing monoplane, multi-gun fighter capable of speeds over 480 km/h (300 mph) to be acquired by the *Jugoslovensko Kraljevsko Ratno Vazduhoplovstvo* (JKRV = Yugoslav Royal Air Force) as it strove to modernize and re-equip in the late 1930s. It was a good and logical choice. At the time the Hurricane was the best fighter that could be purchased from a manufacturer of international standing, and the JKRV's fitters and mechanics were familiar with the Hawker Fury biplane to which it owed many of its features. Better still, both the Zmaj and Rogožarski/Ikarus factories had license built Furies, thus acquiring expertise and experience that would enable them to build Hurricanes. And, finally, the Hurricane was a modern and rugged but "docile" machine that would enable Yugoslav fighter pilots to gain experience prior to converting to a state-of-the-art, and more demanding, design which, in the event, turned out to be the Messerschmitt Me 109E-3a. (In Yugoslavia, the Bf 109E-3 was, and is, always referred to as the Me 109E-3.)

An initial order for 12 Hurricane Mk Is was placed by the Yugoslavs after trials had been conducted in Britain and at Beograd (Belgrade). Photos of the aircraft used in the trials show it was powered by a Rolls-Royce Merlin II driving a Watts Z.38 two-blade, fixed-pitch wooden propeller, and that it had first-series ejector-type exhausts, fabric wings, an unarmoured windshield with less framework than later subtypes, a ring-and-bead gunsight, "thin pole" radio mast, tail strake and a pitot tube under the port wing.

The first two Hurricanes delivered, L1751 and L1752, were taken from an RAF order and arrived in December 1938. Another eight taken from the same Hawker-built batch and serialised L1837-40 and L1858-63 were delivered by April 1939. Each of these aircraft was powered by a Merlin II driving a Watts propeller, had first-series ejector-type exhausts, fabric wings, and resembled the demonstration aircraft. As in the case of all the JKRV's Hurricanes, the armament fitted consisted of eight Belgian 7.92 mm FN Brownings.

A photo taken at Zemun of one of the first Hurricanes delivered shows this aircraft still had a Watts propeller on April 27, 1940. However, Petar J. Bosnić reports that, by April 6, 1941, all 12 first-batch Hurricanes had been retrofitted with de Havilland/Hamilton three-blade, variable-pitch propellers.

Following placement, in February 1940, of a second Yugoslav order for 12 Hurricanes, four Mk Is serialised N2718-21 were delivered in March 1940 to be followed shortly afterwards by the remaining eight serialised N2722-29. All these aircraft were powered by Merlin III engines driving de Havilland/Hamilton threeblade, variable pitch propellers and had metal wings. Very probably they also had external armoured windshields, ring-and-bead gunsights and thin pole radio masts like the Hurricane Mk Is delivered to Romania in March 1940.

In addition to purchasing Hurricanes from Britain, the Yugoslavs acquired a license to build another 100 Mk Is, 60 of which were to be manufactured by Zmaj at Zemun and 40 by Rogožarski A.D. at Beograd. Production was expected to total eight a month from each assembly line by mid-1941. A first order for 24 was placed with Zmaj which also contracted to carry out overhauls and major repairs

Šime Oštrić and Bosnić both state the license-built Hur-

ricanes had Merlin III engines and de Havilland/Hamilton three-blade propellers. Oštrić and Ognjan Petrović list and show as additional features fabric wings, locally-manufactured landing gear, early-type unarmoured windshields lacking the two horizontal frame members, and "pole" radio masts. They also say the license-built Hurricanes had kidney-type exhausts, but other sources state, and photos of a captured aircraft show, that first-series ejector exhausts were fitted.

Oštrić says that, having correlated all the available information, he has come to the conclusion that, despite start-up delays and difficulties encountered in procuring materials, parts and equipment, Zmaj very probably managed to complete all the 24 Hurricanes ordered before the outbreak of war on April 6, 1941. He adds that some Hurricanes were delivered to fighter squadrons after hostilities began, pointing out that these could have been either new-build aircraft or some that had just undergone overhaul or major repairs. Specifically, Oštrić notes that two Hurricanes were delivered to 52. grupa at Knić on April 7, that another three arrived at Knić on April 8, and that 163. eskadrila had seven Hurricanes on strength on April 9. Bosnić states that five Hurricanes were delivered to fighter squadrons after April 6. Boris Kolka says that Zmaj delivered five, or possibly even six, Hurricanes to 52. grupa at Knić on April 7 and 8.

Rogožarski failed to complete any Hurricanes. Production was apparently held up by a decision to build a modified version offering enhanced performance. In 1940, according to Oštrić and Čedomir J. Janić, the question of which engine to use in the IK-3 fighter prompted designers Ljubomir Ilić and Kosta Sivčev to install a Daimler-Benz DB 601A in a modified Hurricane airframe for comparison with a Merlin III powered standard version. The engine bearers, cowling panels and cooling system needed for the one-off conversion were made by Ikarus. The re-engined Hurricane was test flown for about 100 hours by *Kapetan I klase* Miloš Bajagić and other pilots, all of whom reported that the DB 601A engine imparted markedly better performance. Oštrić and Janić say the DB 601A powered Hurricane was 20 km/h (12.4 mph) faster. According to Bosnić, a prototype DB 601Aa powered Hurricane, coded LVT-1, made its first flight in early March 1941 when the maximum attainable speed was estimated to be 557 km/h (348 mph). He states that 24 Hurricane airframes modified to take the DB 601Aa had been 87 percent completed at Rogožarski by April 6, 1941.

An *evidencijski broj* (serial or ID No.) was assigned to both the British-built and Zmaj-built Hurricanes when they were taken into JKRV service. Francis K. Mason states L1751 and L1752 were given the serials 1-205 and 2-306, while L1837-40 and L1858-63 were numbered 3-291, 4-292, 5-293, 6-294, 7-312, 8-313, 9-314, 10-315, 11-316 and 12-317. Mason gives no JKRV serials for the second batch of British-built Hurricanes. However, a Hurricane fitted with a Watts propeller and photographed at Zemun on April 27, 1940, has been identified by Oštrić as BR.2306, the Zmaj-built Hurricane captured and tested by the Italians was very definitely BR.2337, and the Hurricane in which Veljko Vujičić was fatally injured on April 10, 1941, was Zmaj-built BR.2339. This indicates that, even if the JKRV serials were initially as stated by Mason, by April 1941 each JKRV Hurricane was identified by a serial starting with the

letters and digits BR.23.

Theoretically, the serial assigned to each Hurricane should have gone from BR.2301 to BR.2312 for the first batch built in Britain (Merlin II and fabric wings), BR.2313 to BR.2324 for the second British-built batch (Merlin III and metal wings), and BR.2325 to BR.2348 for those built by Zmaj (Merlin III and fabric wings). However, no evidence that this was the case is currently available.

### Camouflage, insignia and markings

The Hawker photos of the Hurricane Mk I trial flown in Britain and Yugoslavia show the aircraft wearing three-colour upper surface camouflage over pale undersurfaces. There were large *kosovo križ* (Kosovo cross) roundels in four positions on the wings but there was no *zastava* (tricolour flag) on the tail. Perhaps because of the light and angles at which the shots were taken, no stencilling is visible on the rudder.

Although some sources claim the first batch of Hurricane Is purchased was delivered wearing JKR V camouflage, Ognjan Petrović and Srećko Bradić state that both the first and second batches of British-built Hurricanes arrived wearing RAF dark green and dark earth upper surface camouflage, with six of the first batch finished in Scheme A and six in Scheme B. They say the undersurfaces of the first twelve were painted *standardno svetlo plave* (standard pale blue) but some of the second batch of twelve had *srebrnaste* (aluminium) undersurfaces with the port wing and horizontal surfaces painted black. (Taking into account the various changes made in the colour schemes applied to British fighters in the period 1938-1940, it would appear that the first batch delivered had Aluminium, i.e. silver paint, undersurfaces and that some in the second batch had the undersurfaces of the starboard wing and tailplane painted matt White, those of the port wing and tailplane painted matt Night, and part of the fuselage left Aluminium. The Hurricanes sold to Romania had black and white undersurfaces divided along the fuselage centre line. It was not until June 6, 1940 that the RAF decided to paint fighter undersurfaces Sky.)

Reportedly, all the British-built Hurricanes were eventually repainted in JKR V camouflage colours. Because of the quality of the photos in various publications, it is practically impossible to detect by when this had been done. A photo of BR.2306 taken on April 27, 1940, when this aircraft was on the strength of 51. *grupa* at Zemun, shows the undersurfaces of the starboard wing and fuselage were a pale colour at the time. Petrovic and Bradic provide an illustration, apparently based on a better print than that in *Aeroplan* 2/95, which shows BR.2306 still wearing British dark green/dark earth Scheme B camouflage. The illustration and photo confirm that there was a roundel under the starboard wing (roundels in four positions?), but no *zastava* on the tail. The illustration shows the full serial painted in small black digits on the fuselage just ahead of and below the tailplane. The photo and illustration show that the last digit of the serial, i.e. 6, was painted in large (yellow?) Roman numerals on the side of the fuselage roughly halfway between fin and radio mast. This practice had apparently been abandoned by April 1941.

The best currently available photos of a Hurricane wearing 1941 JKR V camouflage and markings are apparently those taken of BR.2337 after it was captured by the Italians. Some of these photos and very good drawings by Ognjan Petrović are to be found in *Aeroplan* 2/90. These show that the three-colour upper surface scheme consisted of *tamno smeđja*, *tamno zelena*

and *oker* (dark brown, dark green and ochre) applied in a complex pattern that may have varied markedly from one aircraft to another. The undersurfaces were painted *svetlo sivo-plava* (pale grey-blue). The wing walkways were not painted black. The spinner was black as were the propeller blades, which had yellow tips. The drawings show the patches of fabric covering the gun ports were red, but the photos appear to show there were none. There was a narrow, approximately 30-cm high blue, white and red *zastava* (blue on top) on the upper quarter of the rudder extending roughly 5 cm over the hinge onto the fin. Under the *zastava* were the words *Hoker Hariken*, immediately under that, but larger, BR.2337, and farther down, between the ribs framing the trim tab, abbreviations designating technical data (e.g. weight) which were not shown. All these stencils were in yellow and Cyrillic letters. There was a single, large *kosovo križ* roundel under the port wing, a feature described as "non-standard." The interior of the cockpit, radiator, wheel wells and pilot's seat were painted green-grey. Photos show the insides of the wheel covers were a pale colour, presumably bare metal. On the port side the cowl panel under the exhaust stubs had been replaced with a bare metal spare as had the leading edge panel incorporating the gun ports. The paint scheme as a whole was badly worn and weathered, particularly on the metal upper surfaces of the wings.

BR.2337 was repainted step-by-step after it had been taken over by the Regia Aeronautica. At first, mixed Yugoslav and Italian insignia were displayed, the *kosovski križ* roundel being left intact while a white band was painted on the fuselage and the *zastava* on the rudder was covered with dark olive green and a white cross. Later on, BR.2337 was given a regular Regia Aeronautica camouflage scheme comprising *giallo mimetico*, *verde mimetico* and *bruno mimetico* upper surfaces, with *grigio mimetico* undersurfaces. Italian national insignia was painted in four positions on the wings and a larger white cross with the *stemma sabaudo* (Arms of Savoy) on the rudder. The white fuselage band was widened and the nose was painted yellow. The spinner and propeller were left black with yellow blade tips.

According to Kolka, the last few Zmaj-built Hurricanes delivered to the squadrons when fighting was already in progress, wore dark single-green upper surface camouflage with light grey undersurfaces and had a black spinner and propeller. The green was similar to German dark green (RLM 71 Dunkelgrün?). Standard national insignia was worn: roundels on top of the port wing and under the starboard wing, plus a *zastava* on the tail under which were the usual stencils. Kolka does not provide a serial for one of these aircraft. A colour drawing in a Czech publication illustrates the camouflage scheme described by Kolka, but the serial on the tail is BR.2308. However, BR.2308 must have been one of the British-built Hurricanes so it seems very unlikely that it wore the single-green scheme in April 1941 unless it had only just undergone a major overall and was being repainted when hostilities commenced.

### Combat, April 6-17, 1941

The JKR V Order of Battle shown by Shores, Cull and Malizia for April 6, 1941, the day Hitler launched the invasion of Yugoslavia and started the April War, shows a total of 38 Hurricanes on strength. Kolka gives the same figure.

According to Shores, Cull and Malizia, the Hurricanes were deployed as follows:

3 on the strength of the *Samostalna lovačka eskadrila pri III*

*pilotskoj (lovačkoj) školi* (Independent Fighter Squadron of the 3rd Pilot - Fighter - School)) led by *Kapetan II klase* Danilo M. Grbić and based at Mostar-Kosor. The squadron also had three Me 109E-3s and three BH 33Es (two at Podgorica, Montenegro) and was under the direct command of the JKR VHQ at Lješnica.

15 on the strength of 52. *grupa* at Knić, west of Kragujevac, where they were flown by 163. *eskadrila* and 164. *eskadrila* led by *Kapetan I klase* Miloš Bajagić and *Kapetan* Ivo Oštrić respectively. (According to Kolka, 163. had 8 Hurricanes and 164. had 7.) Together with 31. *grupa* at Susičko Polje near Knić (101. *eskadrila* and 141. *eskadrila* with 19 Me 109E-3s) the two Hurricane squadrons constituted 2. *lovački puk* (2nd Fighter Regiment) of 1. *Lovačka vazduhoplovna brigada* (1st Fighter Air Brigade) with HQ at Beograd-Zemun.

13 on the strength of 33. *grupa* at Bosanski Aleksandrovac. NNW of Banja Luka, Bosnia, where they were flown by 105. *eskadrila* (7) led by *Kapetan* Aleksandar Radičević and 106. *eskadrila* (6) headed by *Kapetan I klase* Dragiša Milijević.

7 on the strength of 34. *grupa* where they were flown by 108. *eskadrila* which, led by *Kapetan* Mladen Milovčić, was also based, together, with the eight IK-2s of 107. *eskadrila* commanded by *Kapetan* Žarko Vukajlović, at Bosanski Aleksandrovac. Together, 33. *grupa* and 34. *grupa* constituted 4. *lovački puk* (4th Fighter Regiment) of 2. *mesovita vazduhoplovna brigada* (2nd Mixed Air Brigade) with HQ at Nova Topola north of Banja Luka.

Kolka agrees with the order of battle given by Shores, Cull and Malizia for April 6, 1941, except that he fails to mention the seven Hurricanes on the strength of 108. *eskadrila* of 34. *grupa*. Bosnić gives different figures and states that the *Samostalna lovačka eskadrila* had two Hurricanes and 2. *lovački puk* (163. *eskadrila* and 164. *eskadrila*) 14 Hurricanes on April 6, 1941. He adds that 33. *grupa* and 34. *grupa* combined had 18 Hurricanes on April 9, 1941, a figure also given by Vladimir Ristić.

(NB: With 38 Hurricanes on strength on April 6 and a further five delivered on April 7 and 8, the JKR V's fighter squadrons had 43 Hurricanes at the beginning of the April War. It follows that five out of a total of 48 purchased and license-built must have been written off prior to April 6. Oštrić states that 52. *grupa* is known to have been equipped exclusively with Zmaj-built Hurricanes while those on the strength of the *Samostalna lovačka eskadrila* were all British built. It seems likely, therefore, that most if not all of the five Hurricanes written off were Merlin II powered aircraft that had been crashed or damaged by trainee fighter pilots. If so, the 20 Hurricanes on the strength of 33. *grupa* and 34. *grupa* probably consisted, give or take one or two of each type, of 16 British-built aircraft, four of which had Merlin II engines and fabric wings, and four Zmaj-built aircraft.)

In the course of the April War, according to Kolka, the JKR V's Hurricanes flew mainly ground attack missions, but their pilots did claim six enemy aircraft shot down and one probable. He states that most of the Hurricanes were destroyed on the ground by enemy aircraft or retreating JKR V personnel.

Shores, Cull and Malizia provide a fuller account (on which the following is primarily based) of the role the Hurricanes played in a confused and chaotic air war in which attention seems to have been primarily focused on the air defence of Beograd. Thus, while the 37 Me 109Es and six IK-3s of 6. *lovački puk* saw extensive action over the capital on April 6, 1941, the 15 Hurricanes of 52. *grupa* at Knić and 19 Me 109Es of 31. *grupa* at Susičko Polje flew many patrols but saw little action save that a

Me 109E pilot shot down a Henschel Hs 126 over the Velika Morava valley near Paraćin.

Tasked with the defence of the Yugoslav IV and VII armies trying to hold the border with Austria and Hungary between Dravograd and Gyekenyes, the 20 Hurricanes and eight IK-2s of 33. *grupa* and 34. *grupa* based at Bosanski Aleksandrovac, 150 km away, were unable to prevent massive Luftwaffe bombing and strafing attacks on the rear positions of either army. Two Hurricanes detailed to escort Blenheim Is of 216. *eskadrila* sent out from Rovine to attack targets in Austria lost the bombers in cloud when one fighter pilot tried to intercept Bf 109Es.

The *Samostalna lovačka eskadrila* attempted to defend the Dalmatian coast, Montenegro, Bosnia and Hercegovina against attacks by Regia Aeronautica and Fliegerkorps X bombers and fighters. The two Avia BH 33Es at Podgorica were shot down within minutes shortly after 1200 hours on April 6. Soon after midday, the three Hurricanes and three Me 109Es based at Kosor intercepted 10 CANT Z.1007bis of 260a, 261a and 236a squadriglie attacking Mostar. The fighters split up the bomber formation and *Narednik* (Sgt) Grupić shot down a 206a CANT Z.1007bis. Two of the Me 109E-3s were damaged. *Kapetan* Stipić flying a Me 109E-3 claimed a Luftwaffe twin-engined aircraft later in the day and, in the afternoon, *Poručnik* (Lt) Fasović flying a Hurricane damaged a reconnaissance Savoia Marchetti SM 79 over Mostar.

On April 7, the surviving Me 109E-3s and IK-3s of 6. *lovački puk* were engaged over Beograd throughout the day. The Hurricanes of 52. *grupa* (which Oštrić states took delivery of two further aircraft during the day) and Me 109Es of 31. *grupa* flew patrols over central Serbia where the Luftwaffe was expected to attack factories in Kragujevac and Kraljevo. The attacks never materialized. A Henschel Hs 126 was shot down by Me 109Es.

The Hurricanes and IK-2s of 33. *grupa* and 34. *grupa* at Bosanski Aleksandrovac flew patrols over Croatia and Bosnia, at times attempting to intercept high flying reconnaissance aircraft. For reasons unknown, the Hurricanes were not called upon to escort the Blenheim Is of 8. *vazduhoplovni bombarderski puk* (8th Bomber Regiment) at Rovine near Nova Topola when they were ordered to attack airfields and railroad stations at Szeged and Pecs in Hungary. Five out of eight 68. *grupa* Blenheims were shot down by Bf 109Es while Hungarian anti aircraft guns shot down one 69. *grupa* Blenheim and damaged three.

Soon after midday, Hurricanes piloted by *Kapetan II klase* Danilo Grbić and *Narednik* Delić of the *Samostalna lovačka eskadrila* attacked a small formation of Junkers Ju 88s heading for Sarajevo. Both aircraft were hit by return fire. Delić managed to crash land, but Grbić was bounced by Bf 109Es, had to bale out, and subsequently died of his wounds. (A photo of Delić's crash-landed Hurricane shows this aircraft had a three-blade propeller and fabric wings. Since Oštrić states the *Samostalna lovačka eskadrila* was equipped with British-built fighters, these two features confirm Bosnić's claim that first-batch imported Hurricanes had been retrofitted with de Havilland/Hamilton propellers by April 1941.)

On April 8, 52. *grupa* Hurricanes escorted 1. *puk* and 11. *samostalna grupa* Blenheims, 3. *puk* Dornier Do 17Ks and 7. *puk* SM 79s ordered to attack German columns in the Kačanik gorge. Visibility was poor due to low cloud and drizzle. The Hurricanes went down to strafe through a very bad patch of weather, the lead being taken by 163. *eskadrila* headed by *Poručnik* Boris Cijan and followed by 164. *eskadrila* led by *Kapetan* Ivo



Oštrić. One Hurricane was hit by ground fire and crash landed near the road. The pilot, *Poručnik* Pantelije Grandić, managed to evade capture. At some time during the day 52. grupa took delivery of another three Hurricanes.

Some of the Hurricanes of 33. grupa and 34. grupa flew patrols over Slovenia and north Croatia, clashing several times with German fighters. Other Hurricanes from the same squadrons escorted 8. puk Blenheims sent out to attack a target in southern Austria.

Five Hurricanes of 105. eskadrila, 33. grupa, led by *Kapetan* Aleksandar Radičević were sent as reinforcements to Veliki Radinci, near Ruma, to which the remaining Me 109E-3s and IK-3s of 6. puk had been withdrawn.

On April 9 it snowed in Serbia and Macedonia. As a result the Me 109Es of 31 grupa were literally stuck in the mud, and at Knić the Hurricanes of 52. grupa (Oštrić states there were seven) were also unable to get into the air.

At Rovine, the 8. puk base, two Staffeln of Bf 109Es of III/JG 54 appeared as two IK-2s of 107. eskadrila from Bosanski Aleksandrovac were coming in to land. The pilot of one of the highly maneuverable IK-2s, *Narednik* Branko Jovanović, managed to engage the Bf 109Es for some minutes, gaining time that enabled five Hurricanes of 108. eskadrila, some Hurricanes of 106. eskadrila and several IK-2s of 107. eskadrila to initiate a dogfight. Following the arrival of a third Staffel of Bf 109Es, the battle raged until the Luftwaffe fighters, presumably low on fuel, broke off the engagement. A Bf 109E was claimed by *Narednik* Zvorad Tomić. *Kapetan* Iklase Dragiša Milijević, the commander of 106. eskadrila, probably shot down a second Bf 109E but was himself killed. *Narednik* Mitić suffered burns and bruises when he had to bale out of his Hurricane, and *Narednik* Stikić was badly wounded when his IK-2 was shot down.

In the evening of April 9, rumours of the impending seizure of Kragujevac by German forces led 31. grupa personnel to burn their mired down Me 109Es. They subsequently discovered that the nearest German column was still 65 km away.

On April 10, the 14. Panzer Division occupied Zagreb, the new independent state of Croatia, the *Nezavisna Država Hrvatska* (NHD), was proclaimed, some Croat units had started to rebel, and all ground units confronting German forces were in retreat. The JKRv, in common with many of the Yugoslav forces, was now beginning to fall apart, and some bomber eskadrila personnel began making attempts to fly out to the Soviet Union. The weather was bad all over Yugoslavia, and no requests were even made for JKRv support.

At Veliki Radinci, the Me 109Es and IK-3s of 6. puk remained grounded, only the attached Hurricanes of 105. eskadrila being able to take off and engage in skirmishes. At Knić, rumours that a German armoured column was fast approaching prompted some pilots of 52. grupa to attempt to fly out despite appalling weather. Five 164. eskadrila Hurricanes managed to take off, but two collided and *Kapetan* Iklase Ivo Oštrić and *Poručnik* Mato Momčilović were killed. Because of fog, a third Hurricane flew into a mountain and pilot Veljko Vujičić was fatally injured. The two remaining Hurricane pilots managed to get back to Knić. The Hurricanes of 163. eskadrila had, in the meantime, been made unserviceable, but repair work was initiated on the least damaged when it was learned that German forces were still far away.

On April 11, the Hurricanes of 33. grupa and 34. grupa at Bosanski Aleksandrovac gave chase to reconnaissance aircraft

over Bosnia and claimed a Messerschmitt Bf 110 shot down. At Veliki Radinci, Luftwaffe Messerschmitts strafed the airfield and 6. puk lost two of its remaining Me 109Es.

Oštrić reports that two fighter pilots, Major Romeo Adum and *Kapetan* Mile Ćurgus were ordered to fly two Hurricanes from Zmaj at Zemun to Veliki Radinci. At about noon, Bf 109Es strafed the two aircraft and damaged Adum's Hurricane. However, both were able to take off but whether they flew to Veliki Radinci or Zagreb is not clear. Oštrić also reports that, on the same day, Hurricane pilot Milan Bjelanović flew two sorties from Veliki Radinci and in one encounter shot down a Ju 88 which crashed near Ruma. Bjelanović subsequently flew his damaged aircraft to Butmir or Bijeljina about 100-km west of Beograd.

Elsewhere, Luftwaffe aircraft were able to operate unhindered and Ju 87s raided airfields at Banja Luka, Bihać and Prijedor. No opposition was offered to small formations raiding Beograd, 6. puk not even being informed. All told, only 31 sorties were flown by what was left of the JKRv's fighters.

On April 12, the weather was still bad, but the Luftwaffe was active over Beograd, Sarajevo, Mostar and Banja Luka.

At Veliki Radinci, early in the day with German forces only 20 km away, the ground crews of 6. puk burned the unit's remaining serviceable aircraft, eight Me 109Es and three IK-3s, together with two (?) 105. eskadrila Hurricanes. Two or more 105. eskadrila Hurricanes were flown to Bijeljina, now the centre to which JKRv aircraft were gravitating, and another was flown to Sarajevo together with some 6. puk trainers.

At about 0730 hours, Bijeljina airfield was attacked by Bf 110s. In three passes they destroyed some 105. eskadrila Hurricanes together with about 17 Blenheims of 1. and 11. puk, the surviving Breguet XIXs of 1. VI grupa and 3. VI grupa and many trainers. After the attack only one Hurricane, two Blenheims and a few trainers were still in airworthy condition.

At Knić, the last two Hurricanes of 163. eskadrila took off to evade approaching German forces and flew to Zemun. *Poručnik* Boris Cijan landed and was taken prisoner by German civilians(?). *Kapetan* Miloš Bajagić noticed something was wrong, broke off his landing run and attempted to fly to Bijeljina. En route he ran out of fuel, attempted to crash-land near Valjevo and was killed. (According to Oštrić, three Hurricanes were repaired and flown out of Knić on April 12. Cijan and a pilot named Pirc landed at Zemun, but Bajagić crashed and was killed. Also on April 12, or April 13, a *Narednik* Ramšek flew a fourth Hurricane from Knić to Užička Požega.)

Five or six Hurricanes and four or five IK-2s of 33. grupa and 34. grupa were still serviceable and spent the day chasing reconnaissance aircraft. One Hurricane pilot shot down a Ju 88 in the Banja Luka area. Junkers Ju 88s of II/KG 51 attacking Mostar airfield were intercepted by a *Samostalna lovačka eskadrila* Hurricane flown by Franjo Godec, who had to bale out when his aircraft was hit by a Ju 88's rear gunner.

Strafing Italian fighters destroyed the *Samostalna lovačka eskadrila*'s last Me 109E on the ground together with abandoned JKRv SM 79s.

On April 13, German forces having entered Beograd the previous night, the Yugoslav High Command admitted that resistance had ended in Macedonia and Slovenia, and that the enemy had advanced deep into Croatia. General Danilo Kalafatović was ordered to seek a cease-fire with the Germans. The Hurricanes of 33. grupa and 34. grupa flew eight sorties, one

pilot claiming a Bf 110 shot down near Banja Luka. One Hurricane was lost and the pilot, Voja Grbić, badly wounded.

Soon after midday, an earlier order to destroy all 4. *puk* and 8. *puk* aircraft was cancelled, and all the two unit's surviving aircraft were flown to Nikšić near Danilovgrad, Montenegro.

On April 13 or 14, Oštrić reports, *Kapetan I klase* Vojislav Rakić was sent from Nikšić to Butmir to pick up a Hurricane needed to provide air cover for the aircraft being assembled at Nikšić to evacuate VIPs. Having taken charge of the available Hurricane, Rakić discovered that the undercarriage would not retract but, following orders, nonetheless took off and flew back to Nikšić. En route he apparently clashed with Italian aircraft, his Hurricane taking 17 hits.

On April 14, Oštrić says, a Major F. Džal and some other pilots were sent from Sarajevo to Knić to fetch whatever fighters could be repaired and flown back to Sarajevo. According to eyewitnesses, only a single Hurricane was made airworthy and Major Džal flew it out, some sources believe to Zagreb. (Džal later served with the Croat NDH Legion.)

On April 15, German troops landed in Ju 52/3m transports and captured Bijeljina airfield, and the JKRv Commander in Chief, General Berivoje J. Mirković handed over command to Pukovnik (Col) Petar Vuković. By this time the JKRv's surviving aircraft had been assembled at three locations: Mostar, where there were about 100 mostly damaged aircraft; Trebinje, where there were some trainers; and at Nikšić, where there were some 130 aircraft including, apart from many older types, some SM 79s, Do 17Ks, Lockheed 10A Electras, Caproni Ca 310s and Bf 108s, about seven Hawker Furies and at least one Hurricane.

Oštrić reports that at 0700 hours on April 15, a single Hurricane provided fighter escort for three SM 79s of 81. *Samostalna bombarderska grupa* sent out from Nikšić to attack Italian armour on the road from Shkoder, Albania, leading to Podgorica, Montenegro. He adds that, at 1000 hours on the same day at Nikšić, General Berivoje Mirković ordered *Kapetan I klase* Dragomir Nešović to assume charge of Rakić's Hurricane, take off immediately, and intercept any enemy aircraft that might attempt to approach Nikšić airfield. Nešović patrolled for about an hour but encountered no Axis aircraft.

In the course of the day King Petar II was flown out to Greece in a SM 79 and a two-day air bridge evacuation of VIPs was initiated. General Berivoje Mirković was badly injured and a government minister killed when their SM 79 was shot down - by Greek anti-aircraft guns according to Shores, Cull and Malizia, by Luftwaffe fighters according to Bosnić.

Oštrić says that, following the departure of the bombers evacuating VIPs, *Kapetan* Rakić attempted to fly his Hurricane to Greece but had to abandon the attempt either because of foul weather or lack of reliable navigating instruments. He returned to Nikšić and apparently abandoned the Hurricane.

On April 17, the Yugoslav forces surrendered and the April War ended. At Nikšić and other airfields, particularly in the Mostar area, Oštrić says, Italian forces seized aircraft of various types including trainers, bombers, obsolescent and modern types. Among them, in fairly good condition, was Hurricane BR.2337. According to Italian sources, two Hurricanes were captured, one of which may have been an aircraft operated by the *Samostalna lovačka eskadrila* at Mostar-Kosor. German forces apparently captured at least three Hurricanes, spare engines and parts on other airfields. Initially earmarked for use by the new Croat Air Force, the *Vojno Zrakoplovstvo* NDH,

these Hurricanes were reportedly acquired by the Romanian Air Force (FARR) in September 1941 and, presumably, incorporated in Escadrila 53. The JKRv serials of these Hurricanes have not surfaced to date, nor is it known whether they were built in Britain or by Zmaj.

Oštrić and other sources confirm that Hurricane BR.2337 was taken over by the Regia Aeronautica and first moved to Shkoder, in Albania, where it apparently stayed for a time. It was then moved to Tirana airfield where photos were taken in May 1941. BR.2337 was subsequently shipped to the Centro Sperimentale at Guidonia, Italy. In September 1941, it was taken to Ciampino airfield outside Rome to be shown to Il Duce, Benito Mussolini. It was then brought back to Guidonia where it was flown by Italian pilots to study its capabilities and devise tactics for combat with British Hurricanes. Early in 1943 a belly landing resulted in damage which could not be repaired owing to lack of spares and specialized workshop facilities. The aircraft was then probably scrapped. (It seems likely that prior to this accident the second captured Hurricane had served as a source of spares since no record appears to exist of its having been flown by Italian pilots. - Author's note.)

## References

Air International, Half-century Hurricane, July 1987, p 33-34.

Petar B. Bosnić, Naše Nebo April 1941 - Spomenica vazduhoplovnim vitezima palim u aprilskom ratu 1941. godine braneći naše nebo.

Angelo Emiliani, Giuseppe F. Ghergo & Achille Vigna, Regia Aeronautica, Colori e Insegne 1935-1943. Velivoli stranieri con insegne italiane/Velivoli italiane con insegne straniere, photos Nos. 108-110.

Boris Kolka, Hurricanes in Yugoslavia, SAFO, Vol.19, No. 4.

Francis K. Mason, The Hawker Hurricane.

Šime Oštrić & Ognjan Petrović, Hariken Br.2337 - Neobična odiseja aviona izradjenog u domaćoj fabrici "Zmaj" u Zemunu, Aeroplan 2/90.

Ognjan Petrović & Srećko Bradić, Bojenje vojnih aviona, II deo, Aeroplan 2/95.

Vladimir Ristić, Air Combat over Yugoslavia, April 1941, SAFO Vol.19, No.4 (76). December 1995.

Geoff Thomas, RAF Fighter Command Camouflage and Markings, 1937-42, Aircraft Modelworld, July 1988.

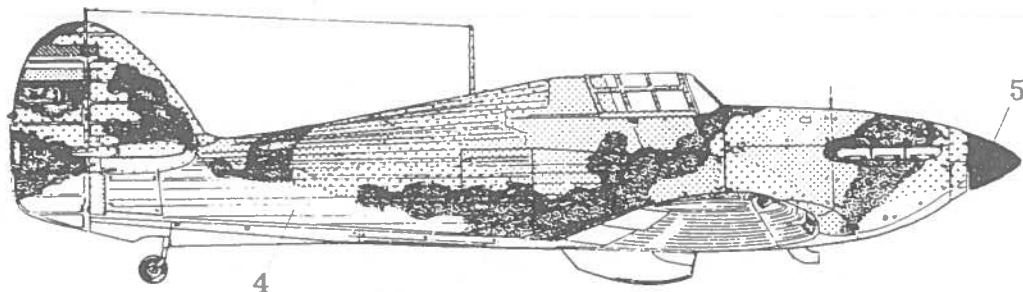
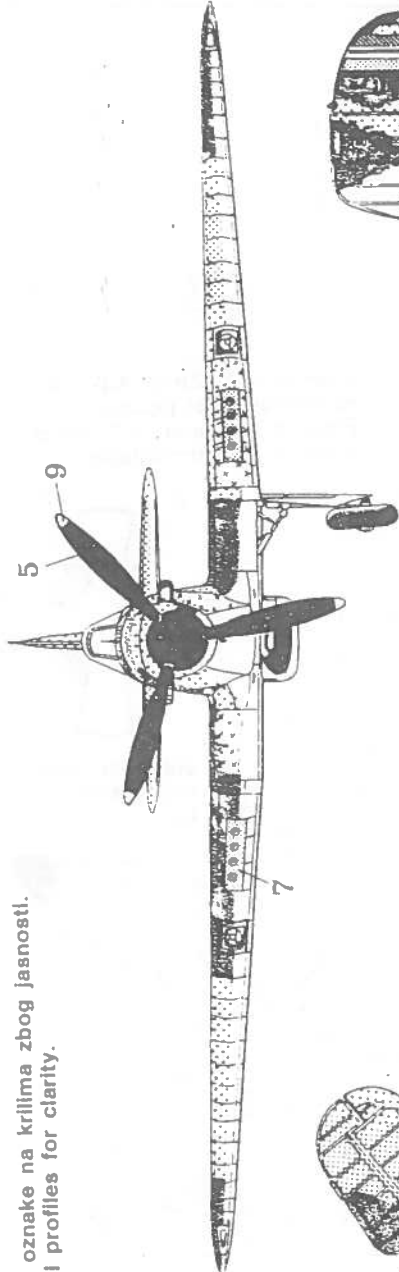
C. Shores & B. Cull with N. Malizia, Air War for Yugoslavia, Greece and Crete, 1940-41.

Squadron/Signal publications, Aircraft No.72, Hurricane in action, p.8

The author is indebted to Nenad Miklušev in Zrenjanin, Serbia, and Ian M. Day in Leeds, England, for the information and reference material they provided. Thanks are also due to Mitja Maruško in Ljubljana, Slovenia, Marko Šoletić in Zagreb, Croatia, and Raymond C. Pelaschier in Pitman, NJ, USA.

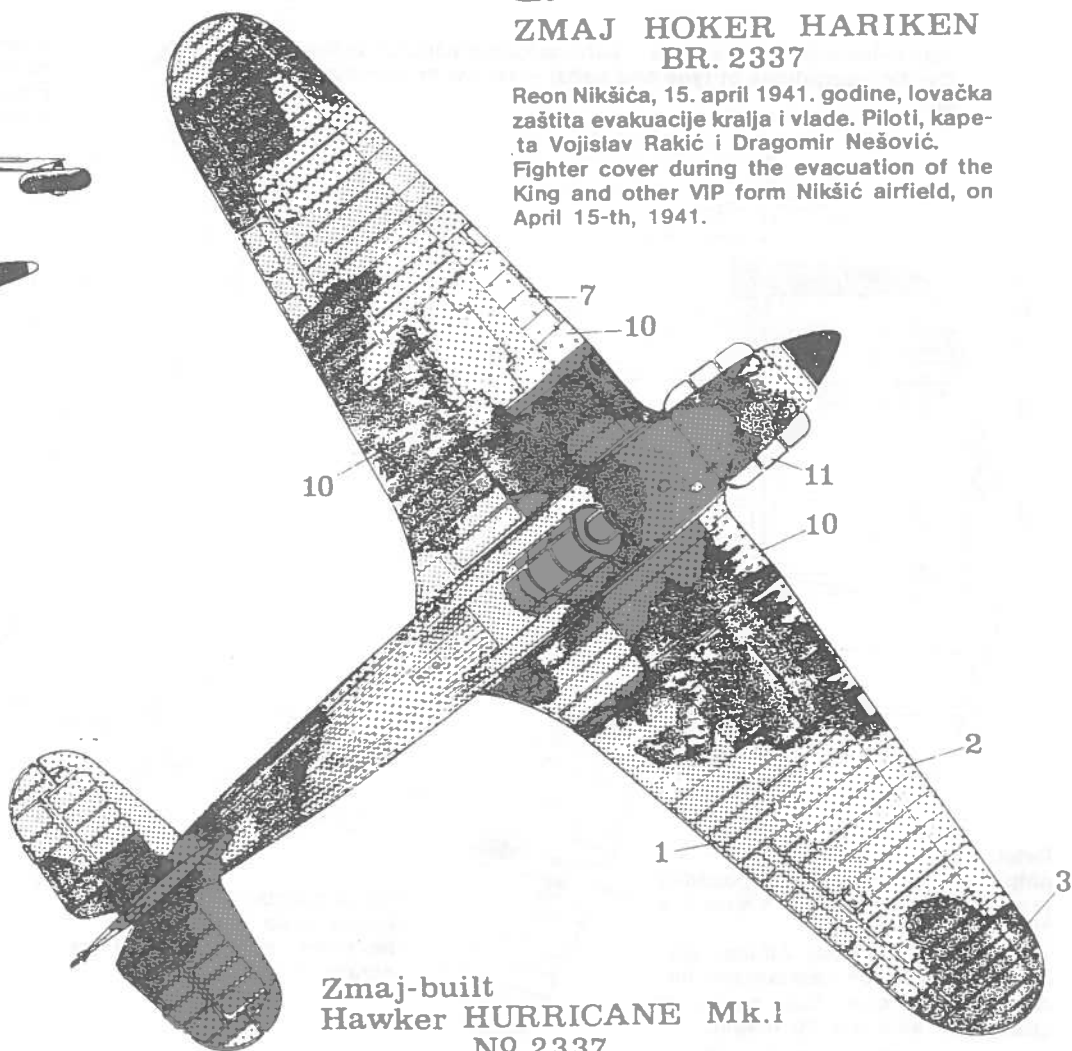
## Comment

Additional information would be very welcome in respect of the following: (1) The JKRv serials assigned to individual Hurricane Mk Is with, if possible, an indication where the aircraft was built and by which *eskadrila* (or *grupa*) it was operated during the April War. (2) The JKRv Hurricanes



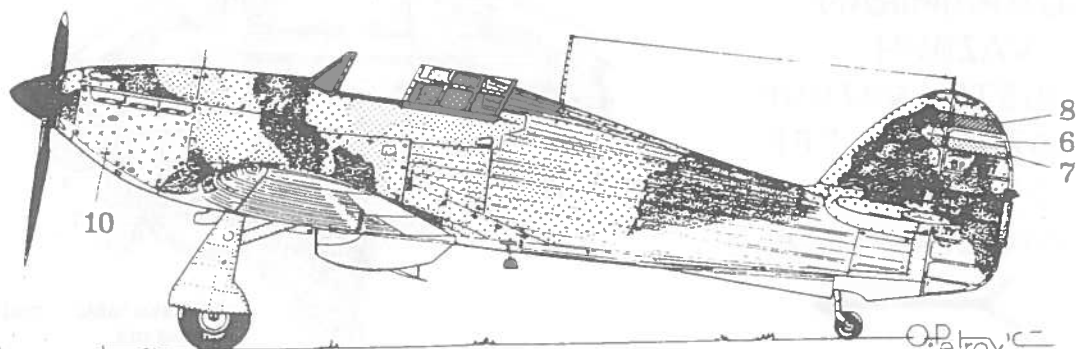
# **1.** **ZMAJ HOKER HARIKEN** **BR. 2337**

Reon Nikšića, 15. april 1941. godine, lovačka zaštita evakuacije kralja i vlade. Piloti, kapeta Vojislav Rakić i Dragomir Nešović.  
Fighter cover during the evacuation of the King and other VIP from Nikšić airfield, on April 15-th, 1941.



## Zmaj-built Hawker HURRICANE Mk.1 No 2337

Mada namenjen 52. grupi 2. puka, neutvrđena jedinica.  
Unknown unit though allotted to 52-nd Group of 2-nd Regiment.



0 1 2m

O. Petrović

Na svim bočnim projekcijama su izostavljene oznake na krilima zbog jasnosti.  
The markings on the wings are deleted in all profiles for clarity.

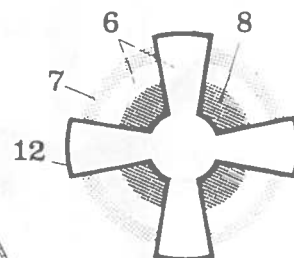
# ХОКЕР ХАРИКЕН БР.2337

9

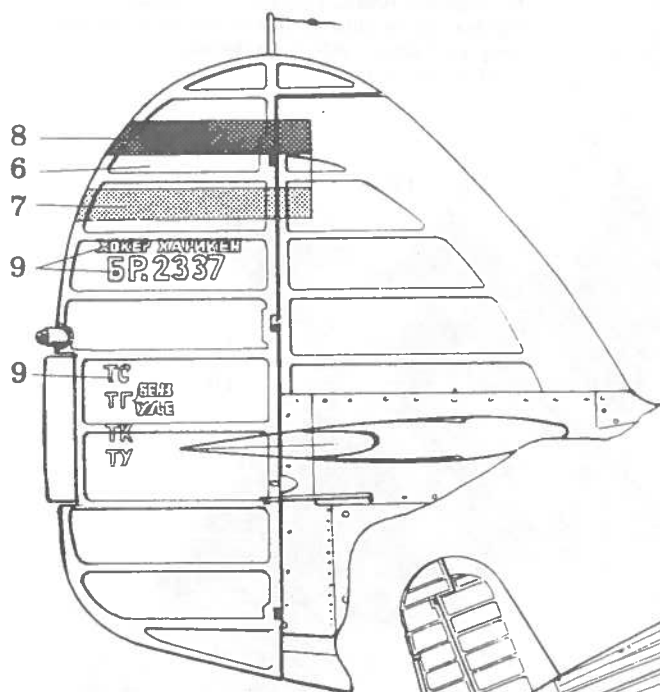
Tip i evidencijski broj aviona – žuta na kamuflažnoj pozadini.  
Cyrillic inscriptions of type and serial – Yellow on camouflage.



Znak fabrike "Zmaj" A.D. – belo na kamuflažnoj pozadini.  
Emblem of "Zmaj" A.D. factory – White on camouflage.

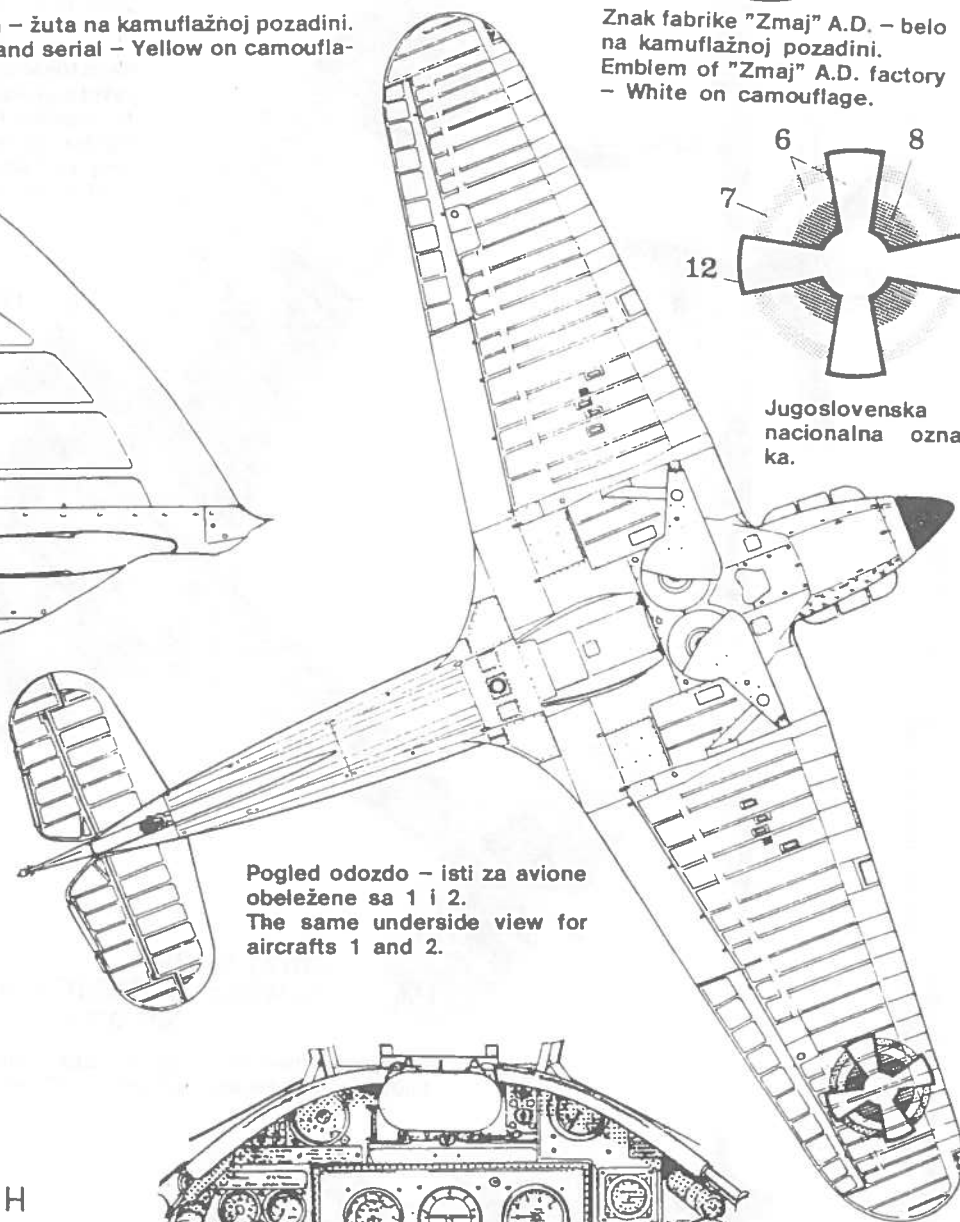


Jugoslovenska nacionalna oznaka.

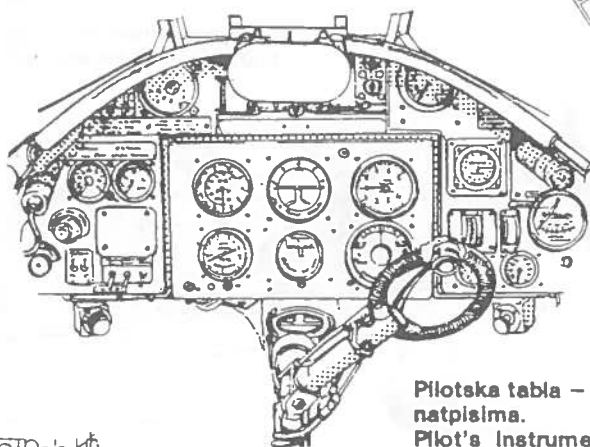


Detalj repa (razmera 1/24) – svi natpisi žuto na kamuflažnoj pozadini (s obe strane). Trobojka visine 3 x 10 cm.  
Tail detail (scale 1/24). All inscriptions are Yellow on camouflage background. National flag, so-called "tricolora" with 3 x 10 height.

**ОПАСНО**  
**КОМПРИМИРАНИ**  
**ВАЗДУХ**  
ИСПУСТИ ВАЗДУХ  
КРОЗ ВЕНТИЛ ПРЕ  
ОТ СТРАН ЖИВАНЈА  
ОВОГ ЗАВРТНЈА



Pogled odozdo – isti za avione obeležene sa 1 i 2.  
The same underside view for aircrafts 1 and 2.



Pilotska tabla – matt crno sa belim natpisima.  
Pilot's Instrument panel – Matt Black with White inscriptions.

О.Петров



acquired by the Romanian Air Force. British- or Zmaj- built, serials, camouflage and markings worn at time of capture and in Romanian service. (3) The second Hurricane captured by Italian forces. (4) The prototype DB 601Aa powered Hurricane coded LVT-1 and first flown in March 1941. (5) The 24 Hurricane airframes converted by Rogożarski to take DB 601 engines. Were they destroyed, tested by the Luftwaffe, acquired by the Romanians as sources of spare parts?

Maybe a reader, or someone a reader knows, has old documents and/or photos that could help to answer at least some of the above questions.

### The Model

Either the Airfix or the Hasegawa kit can be used to build a 1/72 scale model of a JKRV Hurricane Mk I. (Airfix also offer Mk I kits in 1/48 and 1/24 scale.) In reviews of the two kits published in IPMS (UK) Magazine Issues Nos. 6/98 and 1/99, Ian M. Day and John Riley conclude that the one to choose is the Airfix Mk I, boxed as such, with codes JX-B of 1 Squadron or DT-A of 257 Squadron.

The Hasegawa kit apparently has several drawbacks. These include the poor representation of the fabric covering on the rear fuselage ("more Ju 52 than Hurricane"), a cockpit consisting of only four parts and a decal for the instruments, parts solely for an early Rotol propeller assembly, and wings with Mk IIB armament features which need filling in and sanding.

The Airfix kit is fine so far as dimensions are concerned except that the fuselage is apparently slightly short at the extreme nose (1.0 mm?). The cockpit consists of a floor, seat/bulkhead and pilot figure; there is no instrument panel, control column or sidewall detail. There are parts for a Rotol propeller but not for a de Havilland/Hamilton unit. The wheel wells need to be boxed in if the kit parts are used, and the spent cartridge ejection slots are not even ghosted.

### Construction

Making up a model of a Zmaj-built Hurricane Mk I with the Airfix kit necessitated modifying some parts and adding some missing exterior detail.

(1) Fuselage: An instrument panel, control column and seat belts, etc. were scratch built to fill the empty cockpit (If you like etched brass, use Airwaves detail set AC 7265.) A "pole" radio mast was substituted for Part 15, a stub pole added to the top of the rudder above the hinge line and a bead sight to the top of the cowling. Since such parts tend to get broken off when painting, brass and steel wire were used instead of stretched sprue. The exhaust stacks are acceptable, although that on the port side is not as well moulded as the other. Maybe this feature could be improved by substituting the appropriate parts from the new Revell Mk IIB kit. (As the moulded-on exhaust stacks had been converted to the "kidney" type before news arrived from Serbia that this was all wrong, Defiant exhausts from the Aeroclub range were substituted.) A small fairing was added on each side of the cowling just behind the spinner, and the crank holes and the small vents aperture below the port exhaust stack were drilled out. These features are shown on most plans and are visible in photos.

(2) Propeller: The "Rotol" kit parts were transferred to the spares box and the spinner and propeller from an Airfix Spitfire Mk I kit fitted instead. To allow the propeller to be rotated, Part 6 of the Spitfire assembly was discarded and a length of rod of

equal diameter was inserted in Parts 4 and 5 to make a propeller shaft about 15 mm long. This shaft was inserted in two pieces of tube, one long next to Part 6, and one short at the end of the shaft. The short piece of tube was cemented to the shaft. The propeller shaft could now rotate in the longer piece of tube without falling out. The hole in the nose of the fuselage was widened so that the pieces of tube would just slip in. The propeller sub-assembly was then put aside to be painted and added when the rest of the model had been completed.

(3) Wings: The Zmaj-built Hurricanes had fabric wings. Ian Day and John Riley suggest four ways to model this feature. The first is scratch building. The second and third methods entail sanding off all the surface detail on the wings (Parts Nos. 9, 10 and 11) from the gun bays outboard (but leaving the ailerons untouched). Now either draw the rib detail with a fine-tip ballpoint on pieces of 5 thou (0.125 mm) card and then cement these on the parts or, alternatively, mark the rib detail on the wings with pencil and with liquid cement float on thin strips of stretched sprue which can be lightly sanded when everything has set. The fourth method - which was adopted - is to buy the Magna Models Fabric Wing 72-28 conversion set which includes a vacuformed early canopy and a white metal Watts two-blade propeller. The one-piece resin wing saves time but it is not too crisply moulded and some trouble was encountered in tidying up the landing light apertures and fitting Parts 25 and 26. Some cleaning up was also required in the wheel well area where a bit of detail was scratch built. The gun ports were drilled out. The wings were then attached to the fuselage and the join lines cleaned up. A pitot tube was made up with stretched sprue to be attached under the port wing later on.

(4) Tail unit: When the tail planes were attached care had to be taken to ensure the elevator hinge lines were really in line and at right angles to the line of flight. This entailed some sanding and filling.

(5) Undercarriage: The edges of the wheel covers (Parts 20 and 21) were cambered and the additional struts shown in plans and photos were added to Parts 22 and 23. The tail-wheel recess was opened up, the narrow top of Part 28 cemented in a piece of tube of appropriate length and the tube cemented in the tail-wheel recess.

(6) Radiator: Detail was added with reference to photos and drawings using card and stretched sprue. The radiator flap was cut out, a new one made from 0.25 mm card and inserted in the open position.

(7) Canopy: The two upper struts joining the frame of the flat frontal part of the windshield to the back of the windshield frame were sanded off, then transparency and gloss restored by polishing with toothpaste. If the canopy supplied with the Magna Models wing is to be used, it may prove necessary to build up that section of the fuselage "hump" which fits under the end of the Airfix canopy.

### Painting

As the only properly documented April War camouflage scheme applied to a JKRV Hurricane was that worn by BR.2337, this was the one chosen. Humbrol paints were used throughout.

The cockpit, including the seat, was painted Interior Green (158) and details were lightly dry brushed with Aluminium (56). The instrument panel and gunsight were painted Matt Black (33), the control column grip highlighted with Matt Brown Yellow (94), and the seat belt buckles simulated with Silver (11).

The radiator face and back were painted Matt Black, the rest of the interior was painted Interior Green, as were the wheel wells, these latter being heavily dry brushed with Aluminium to highlight added detail and simulate wear. The insides of the wheel covers and wheel centres were also painted Aluminium, the oleos and other undercarriage struts Silver. The tires were painted Matt Tank Grey (67).

The upper surface camouflage scheme was applied using Matt US Tan (118), Matt Dark Green (30) and Matt Chocolate (98). The undersurfaces were painted Matt Light Grey (64). The cowlings and gun-port replacement panels on the port side were painted Aluminium, which was also dry brushed on the wings to simulate severe wear and weathering. The walkways were NOT painted black. The gun-port area on the starboard wing was drybrushed with Aluminium.

The windshield framework was painted Matt Chocolate on top of Interior Green, the rest of the canopy framework Matt US Tan on top of Interior Green.

The spinner/propeller assembly was painted Matt Black with Trainer Yellow (24) blade tips.

### Decals

The national insignia worn by BR.2337 consisted of a single *kosovo križ* roundel under the port wing and the standard *zastava* on the rudder overlapping onto the fin. Ognjan Petrović's drawings show that, in 1/72 scale, the diameter of the roundel should be 14.7 mm. Aviation USK Sheet No.7114 reportedly provides insignia for JKRv Me 109Es, Hurricanes, Furies, IK-2s and IK3s, but was not to be found. The roundels supplied with one Dekno kit are 14.5 mm in diameter but the cross is the wrong shape. The roundels supplied with the Matchbox Hawker Fury are 15.5 mm in diameter and green or turquoise where they should be blue. One was corrected by painting the green/turquoise areas Matt WWI Blue (109) and applied a little farther inboard.

In 1/72 scale, the *zastava* should measure approximately 10.5

mm by 4.5 mm. It was made up by masking off a 1.5 mm strip of white next to the red on the Matchbox Fury tail decals, and painting the rest of the white blue. Afterwards, a 4.5 mm wide blue-white-red strip was cut off out of each decal, applied, and trimmed.

### References

Ian M. Day & John Riley, *Their Finest Hour?* Parts 1 and 2, IPMS (UK) Magazine, Issues 6/98 and 1/99.

Neil Robinson, *First of the Many*, IPMS (UK) Magazine, Issue ??

Sid Napier (SAFCH #1521), Burgstrasse 2, CH-4107 Ettlingen, Switzerland.

**Color Key** (revised to show current Humbrol paint availability and colour designations)

1. oker, approx. FS 30118: 29 Matt Dark Earth + some 24 Trainer Yellow or 118 Matt US Tan.
2. tamno zelena, approx. FS 34096: 30 Matt Dark Green or 102 Matt Army Green.
3. tamno smedja ili braon, approx. FS 20040: 98 Matt Chocolate.
4. svetlo sivo-plava, approx. FS 25526: 65 Matt Aircraft Blue plus some 64 Matt Light Grey. Other sources recommend using only 64 Matt Light Grey.
5. crna: 33 Matt Black.
6. bela: 34 Matt White.
7. crvena: 60 Matt Scarlet.
8. plava za oznake: 109 Matt WWI Blue.
9. žuta: 24 Trainer Yellow.
10. aluminjum (srebmasta): 11 Silver or 56 Aluminium.
11. boja rdje: 70 Matt Brick Red

All drawings by Ognjan Petrović, Aeroplan 2/90.

## -miscellaneous-miscellaneous-miscellaneous-miscellaneous-miscellaneous-miscellaneous-miscellaneous-

**Philippine Air Force 5th Fighter Wing.** Computer generated cloth patches; approximately 4 inch; full color. Six patches \$35.00 air mail. Bert Anido, PO Box 2473 MCPO, Makati City 1200 Philippines. E-mail: [aanido@evoserve.com](mailto:aanido@evoserve.com)

These high-quality patches consists of the following. (1) 5th Fighter Wing: brown eagle (black, white, & red details) entwined in a yellow '5' over a circular blue field with 3 yellow stars and a red border. (2) 6th Tactical Fighter Squadron 'Cobras': brown cobra (black, yellow, white, & red details) over a white '6' on a circular blue background. (3) 7th Tactical Fighter Squadron 'Crusaders': silver F-8 Crusader (with black, white, red, & blue details) over a sword-carrying pilot (silver and gold with black, white, red & blue details) over a red-outlined blue shield with yellow "Crusader". (4) 9th Tactical Fighter Squadron 'Liaibas' (Philippine Eagle): a shield, divided into black, red, & blue fields, with a black eagle (white details), three yellow stars on a white horizontal band, Philippine Air Force insignia (white, blue, & red) and white "9th TAC FTR SQDN". (5) 77th Tactical Fighter Squadron 'Bull Dogs': white bull dog (back & red

details), two yellow dice (black details) on a circular blue field outlined in red. (6) 10th Combat Crew Training Squadron: white eagle claw (black details) grasping three arrows (black & white), over orange shield with white "105" and black border.

**AV Usk Y2K Catalog.** 100 pages. \$5.00. Aviation Usk, PO box 97, 602 Front St., Usk, WA 99180, USA. E-mail: [avusk@povn.com](mailto:avusk@povn.com). Web Site: [www.povn.com/avusk](http://www.povn.com/avusk).

You'll find a lot of really neat, hard-to-find stuff in this fun-to-read catalog. A partial listing of the contents should suffice to whet your appetite and tweak your curiosity: AeroClub kits/decals; Aviation History "Colouring" books; Avions mags/books; A/V Resins; Broplan vacs; Cutting Edge decals; Czechmaster epoxy kits; Daco decals; Dekno resin kits; Engines & Things; Falcons vacs; High-Plane kits; Mach 2 kits; Model Krak (Chorosy) kits; Monographs: RCR models; R/S resins; Ultracast resin; Uskian kits/decals; Warbird Tech Series; Zlinek Mag.

The lists are all very extensive (for example, the Engines & Things list is 5 pages) and each item is

described in enough detail so you know what you are ordering. Many of the kits and most of the books are accompanied by a mini-review.

I've always found AV Usk's service prompt, accurate, and polite. They also have a efficient "back order" system; if you ask for something that is out of stock, they put your name on a list and you don't have to pay until they send you a card announcing it is available.

The above list was not entirely chosen at random. Products from most of the companies listed have reviewed in previous issues of SAFO, but usually without a source or price being known. With the AV Usk Y2K Catalog on your shelf, you'll have a way to find out what is available, how much it costs, and where to order it without the expense of obtaining international money orders in a bunch of different currencies.

Highly recommended for all SAFO readers who like exotic kits, decals, magazines, and book. And, who reads SAFO and doesn't like these sorts of things?

# The Macchi M.18

Bill Devins

The post-WW I Macchi M.18 was a 3-place biplane maritime recon-bomber. It was descended from the 1915 L.1, a copy of the Austro-Hungarian Lohner 'boats. Successive refinement had led Macchi to incorporate the triangular Warren-truss interplane bracing on the 1917 M.8. Next came a small series of the slightly larger and heavier M.9, introduced in the last year of the war. The M.18 was basically an M.9 with a refined hull; otherwise, it was virtually identical to its predecessor.

Powered by a 250-hp Isotta-Fraschini V.6 (the IF V-series powerplants were in-line six-cylinder engines, *not* "V" types), the M.18 entered production in both military and civil versions. The military model had an open cockpit for two pilots ahead of the lower wing leading edge, with a single bombardier-gunner's open bow position just ahead of it. Some of the 70 civil versions featured enclosed forward cabins and a single pilot's open position beneath the engine. In addition to various Italian operators, Ad Astra of Switzerland used a number of civil M.18s.

## Shipboard Series

Sometime after the introduction of the M.18, Macchi began delivering a catapult-capable version for use on warships of the Italian Navy. Designated M.18AR (for *Ali Ripiegabili* = folding wings), it differed visually from the standard version only in the arrangement of some struts. The fixing points for the lower ends of the inboard interplane struts were moved closer to the hull, and a single vertical strut was attached to the forward fittings. These connections were immediately outboard of the wing fold break line; the new vertical strut helped support the wing cellule when it was folded. The lower parallel pair of hull-to-wing braces on each side had to be anchored further inboard as well; these struts supported the non-folding lower wing center section. A triangular fan-like wing rib arrangement was incorporated into the trailing edge of each wing surface. As the wings folded aft on hinges mounted on their rear spars, these rib fans collapsed, accordion-like, between the fixed and folding surfaces.

The Italian Navy used the M.18AR on a number of its capital ships. The battleships *Andrea Doria*, *Conte di Cavour*, and *Duilio* originally launched their single M.18ARs from a catapult on the midships turret. Later a fixed launcher mounted just off the port forecastle was used; ultimately trainable midships catapults were added to the ships during their late 1930s' refits. The light cruiser *Ancona* (the former German *Graudenz*) was converted to a catapult test vessel in 1928; it carried one M.18AR. Additionally, eleven M.18ARs were embarked on the seaplane carrier *Guiseppe Miraglia*. The Italian Navy decided to phase out the Macchi flying-boat in 1929, but the M.18AR lingered in service until at least 1935. [Thanks to Dick Layman for this ship assignment data.]

## Iberian Introduction; Some Confusion

Spain was the first export customer for the military M.18. Two Italian machines were delivered in 1921 or 1922, with a further 15 following over the next few years. These aircraft were apparently intended for the seaplane carrier *Dédalo*. It was deployed to Morocco for that campaign, and on 6 August 1922 the Spanish Navy flew its first-ever combat mission. An M.18, flown by Andrade and Guillén, bombed Morronuevo and Azib-fazar. I can't determine if these Italian-built machines were

M.18ARs or fixed-wing machines. Folding wings would have been advantageous for such shipboard aircraft, and Spain may have made it a requirement. Thus Macchi could have been producing the M.18AR as early as 1921.

By 1925, the Spanish Navy workshops at Barcelona began supplying Macchi M.18ARs, some of which were powered by the indigenous Hispano-Suiza 6 MD. It is virtually certain that all 45 of these aircraft were ARs; indeed, more than half of all M.18ARs were built in Spain. Assuming the Italian-built machines were used as pattern aircraft, at least some of them had to be ARs. No photos of Spanish Macchis I have seen can be positively identified as fixed-wing M.18s.

Six M.18ARs were still in service when the Spanish Civil War broke out in 1936. They were used operationally in the Mediterranean very early in the conflict, but were soon relegated to second-line duties. None survived the war.

Portugal, Spain's Iberian neighbor, acquired eight Macchi flying-boats which were used until 1933 as attack and navigation trainers. Once again, these machines all seem to have been folding-wing M.18ARs.

## Paraguayan Purchases; More Confusion

In 1933 the government of landlocked Paraguay went shopping for a combat-capable seaplane for its Naval Aviation School. They purchased a pair of new Macchi M.18s equipped with racks for six small bombs and bow machine gun rings for use against Bolivia, with whom they had been fighting the Chaco War for five years. Desperation and economics probably factored into the decision to purchase an aircraft which had made its service debut nearly 15 years before!

The Macchis were the last of five seaplanes used by the Paraguayan Naval Aviation (PNA). They were coded R-3 and R-5 and each had large and intricate bird in flight emblems (a wading bird, probably a jabiru, the South American stork) painted beneath the gun position. R-3 was apparently fitted with a metal airscrew, while R-5 (MM.3805) had the usual wooden two-blader. Neither exhibited any of the distinguishing characteristics of the shipboard Macchi: the interplane struts and lower wing braces were fixed further outboard than on the folding-wing aircraft, there were no vertical interplane supports, and the collapsible triangular sections were absent from the wing trailing edges. Further, there is no evidence of a wing fold break line on either the upper or lower planes of PNA M.18s. Thus, while virtually every published reference lists this Paraguayan pair as M.18ARs, they were in fact fixed-wing M.18s.

(I have corresponded with Antonio Sapienza who states, as I suspected, that all PNA documents he has seen or heard of catalog the Macchis as M.18ARs. Ramón Martino, now a retired Rear Admiral, told him that the PNA never used a folding wing feature, even for storage. With the photographic record to the contrary, I presume that the aircraft were listed in original Macchi documents as M.18ARs, and the mis-designation carried over to the PNA, remaining to this day.)

The Paraguayan Navy M.18s were used in action against Bolivian forces from 1933 to 1935, when the Chaco War ended. In December 1934 Teniente (Lieutenant) Ramón E Martino with Capitaine Job von Zastrow as his observer, flying R-5 from Bahia Negra, successfully undertook the first night aerial bomb-

ing mission in the history of South American warfare. R-5 remained on strength, although not operationally, until 1947. Midshipman Fretes Yodice wrote off R-3 in a crash at Bahia Negra in August 1935.

The reliable and steady Macchi M.18 soldiered on long after its design and concept were outdated. Designed for the Italian Navy in 1918, it was still operational with that service some 17 years on. Of 1915 concept, it was flying bombing missions in two wars half a world apart more than 20 years later. It was one of the utilitarian seaplanes which kept Macchi and the Italian aviation industry afloat during the lean years between the World Wars.

#### Macchi M.18AR 1/72 Dekno Resin Kit

Dekno is a Spanish firm producing 1/72 scale resin kits of aircraft operated by Spain's military forces during the Spanish Civil War of 1936-39. The M.18AR is one of their recent releases; it is the first Dekno kit I've had the pleasure of examining in detail. A very comprehensive product, it comprises 32 resin major components and details, 30 white metal struts, a vac-form windscreen, extensive decals, and instructions, all packaged in a sturdy box with a color photo of the finished model on its top.

The shape of the Macchi M.18AR is faithfully captured in buff-colored urethane resin. The contours of the hull and wingtip floats are very well represented. Surface detail on the flying surfaces is particularly good, with neat, accurate raised rib scribing and sharp trailing edges. The wings themselves are appropriately thin. The cockpit area is hollow, and a resin tub is provided to contain the resin interior details: seats, control columns and wheels, and an instrument panel. A gun ring, machine gun, and wind-driven generator with a separate propeller are included in resin as well. The engine, radiator, and lower cowl pan are molded together as a single resin piece; with some careful painting, this part will look most effective.

Each of the metal struts is "tagged" with an identifying number. DON'T remove these until you're certain of the strut's identity! All of them are accurately shaped and are cast with nice thin trailing edges. There are a few lumps and pits on the larger struts; priming and sanding will help. The four tailplane supports are tagged with the number "0"; this is not indicated on the plans. The wingtip float attachment struts are not included. Use some Strutz stock or metal or plastic rod to fabricate these items. A true-length pattern is not provided, so you'll have to concoct them by trial-and-error.

The major components will need some cleaning up, particularly the wing leading edges and hull top. The lower wing fits into a hollow section of the fuselage; make sure it seats firmly all the way down into its position. An often overlooked characteristic of Macchi pusher biplane 'boats is the slight concavity of the hull top aft of the rear struts to allow for propeller clearance. You can add this feature by gentle sanding. Another fix in that neighborhood involves extending the lower wing trailing edge all the way to the fuselage; the kit part falls short. The trailing edge at that point is straight, and at right angles to the line of flight.

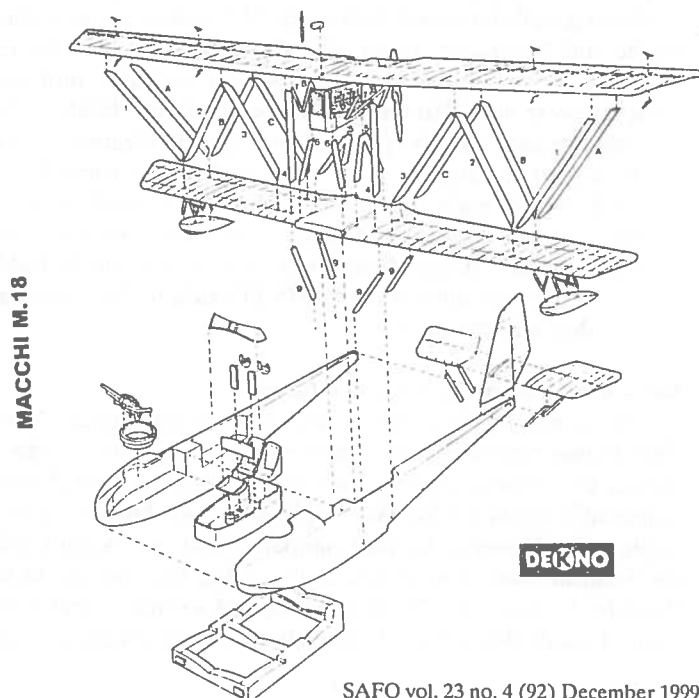
Strut locations are noted with depressions large enough to accommodate the metal struts. The kit is correctly molded as an M.18AR, but some of the strut positions are more like that of the M.18. The wing fold is properly portrayed as an engraved line ending in a triangular section at the trailing edge. The center-section struts have to attach inside of that line, so move the cabane strut mounting points on the upper wing slightly

inboard. On the lower wing, move the fixing points for the inner pair of inclined struts to just outside the break line. The front strut's position should coincide with the correctly-located vertical strut (part #4). The tailplane supports should be further apart, with the aft pair right at the fixed surface trailing edge. This attachment-point juggling may result in some minor remodelling of the struts themselves. Note also that the upper wing should have no dihedral.

While Dekno has so far confined its subject matter aircraft to used in Spain, they apparently exhibit no such parochialism in choosing markings for each individual kit. The M.18AR comes with a superb decal sheet containing markings for six aircraft, including Italian and Portuguese alternatives. The four Spanish options cover all the historical stages of the M.18AR: an early 1920s military model with civil registration, a later military-marked example, and both silver and dark green Republican schemes from the war years. The decals are crisply-printed and in good register. The characteristic style of lettering is nicely depicted for each scheme. Two full sets of Spanish roundels, one with pre-war Monarchy red centers and the other with wartime Republican purple middles, are supplied.

Overall, the Dekno Macchi M.18AR, ref E-2200, is an excellent presentation. Being a resin biplane, it certainly won't fall together, but that comes with the territory. Instructions are confined to an exploded view and six color scheme profiles, and you have to work a couple of things out for yourself, but once again, if you build obscure twenties types you know that going in. Packaging is exceptional; the parts and decals come in three separate bags, and the upper wing is taped to piece of poster board to keep it safe. The windscreen, which I originally thought was missing, was found taped securely to the side of the corrugated box! Kudos to Dekno for this fine kit of a classic 'tween-wars workhorse. Dekno kits are distributed in the US by J-BAR Hobbies, 117 E Chicago Blvd, Tecumseh MI 49286 and Aviation Usk; price should be about \$25. Thanks to Albert Serra of Dekno and IPMS/Canada for the review sample.

Bill Devins (SAFCH #557), IPMS/USA Seaplane SIG, 358 Arbor Rd., Lancaster, PA 17601-3204, USA.

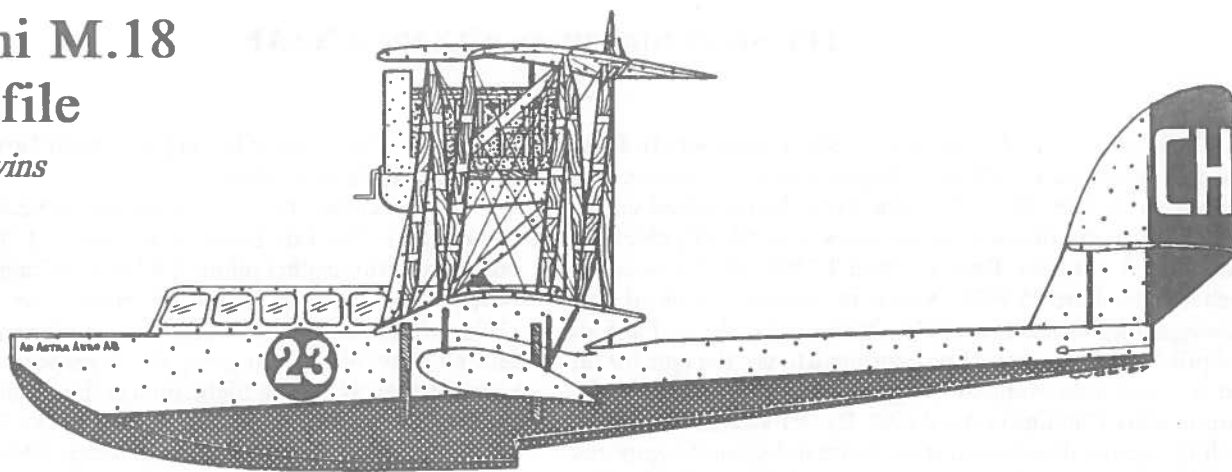




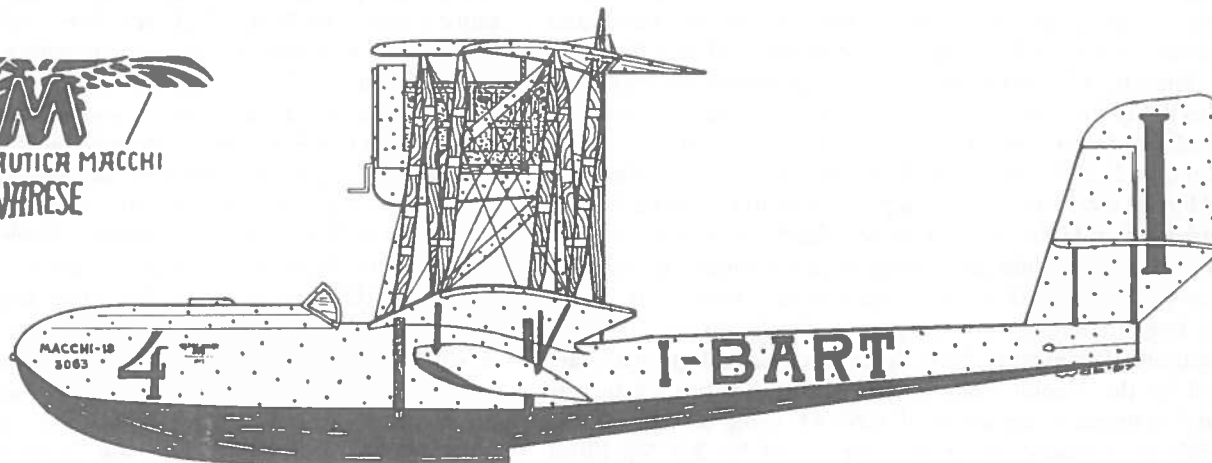
# Macchi M.18 in Profile

by Bill Devins

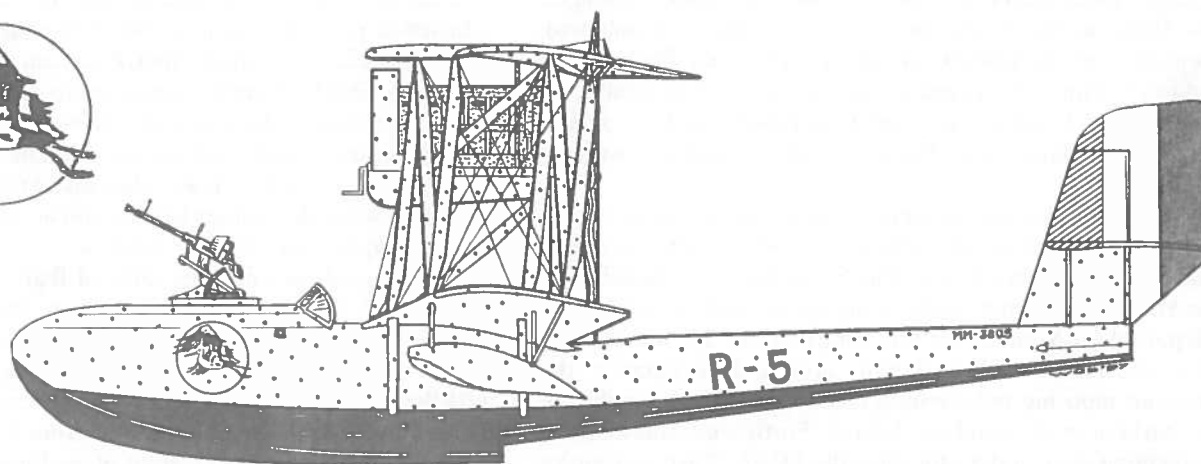
1/60 Scale



Civil four-passenger cabin M.18 of Ad Astra Aero AB, based at Zürichhorn, Switzerland in 1920. Note the early M.9-style fin, rudder, and tip floats. The aircraft is probably silver-grey with a dark grey hull bottom beneath a red waterline. White Swiss national ID letters "CH" (for *Confoederatio Helvetica*, Switzerland's official name) appear on a red rudder. White 23 is painted in a red disk below the cabin and in a larger form above the starboard wing. A similar disk to port carries the white CH letters. The company name "AD ASTRA AERO AB" is painted in red, or possibly black, on the nose.



M.18 c/n 3063 registered to its manufacturer, Aeronautica Macchi, in 1925 and bearing the company crest. Probably overall silver with black lower hull and markings. Registration I-BART is carried nearly full-chord across the lower wings, with "ART" to port. On the upper wing the codes may have appeared across the center section with the arms of the "A" straddling the trailing edge engine cut-out. The full registration may also appear across the tailplane instead of the more common Italian "I" in four positions.



Paraguayan Navy M.18 R-5 serial MM 3805, armed with twin Madsen guns, in standard silver and black finish with black codes. Paraguayan red (outer)/white/blue roundels in four wing positions. The entire tail section carries the national tricolor of red (aft)/white/blue but applied in the vertical Italian style. Stork emblem, black and white with red details, on both sides of nose.

# The Short Singapore with the RNZAF

Andy Thomas

The large and stately four engined Short Singapore III flying boat epitomized the grandeur of the genre during its service with the RAF in the late 1930's. The type had a distinguished service both at home and overseas in the years after Short's chief test pilot, John Lankester Parker, lifted K3592 off the water at Rochester on June 25 1934. A total of 37 were produced, first entering squadron service with No 205 Squadron in the Far East on April 2 1935. This squadron continued to use the type for the next six years until eventually beginning re-equipment with the more-modern Catalina in April 1941. By October, 205 Squadron was fully equipped and could at last retire its biplane Singapores.

With Japanese ambitions in Asia and the Pacific looking increasingly aggressive, the Royal New Zealand Air Force cast around for a flying boat to fulfil its patrol responsibilities in the South Pacific. Modern equipment was in short supply and so the RAF offered the RNZAF the aircraft of the Singapore-based No 205 Squadron. Although obsolescent, the offer was readily accepted and four aircraft, K6912, K6916, K6917, and K6918 were allocated. All were from the third production batch and had been delivered for service between May and July 1936.

Since the RNZAF required the Singapores to operate from bases in Fiji for patrols over the South Pacific, they would have to be ferried from Singapore. Therefore, in mid-1941 four pilots - Sqn Ldrs E.M. Lewis and D.W. Baird, Flt Lt R.H.M. Hickson, and Fg Off J.W. Winefield - completed a short course on Walrus amphibians at Hobsonville near Auckland. On completion, the four officers and eight airmen departed for Singapore, forming a Ferry Flight at RAF Station Seletar in mid-September. There they began training and acceptance checks on the first two Singapore IIIs. Further New Zealand personnel gradually arrived for the second Ferry Flight and on October 1 Sqn Ldr Baird assumed command of all RNZAF flying boat personnel at Seletar. Training under the auspices of No 205 Squadron continued into October with the four aircraft formally being transferred to RNZAF charge on the 14th.

Two days later, K6916, flown by Fg Off Winefield and crew, lifted off from Seletar flying-boat base to begin the long flight to Fiji. They were followed soon afterwards by Sqn Ldr Lewis with Flt Lt Hickson and crew in K6917. The route, taken in stages, was: Batavia, Surabaya (both in Java), Bima (Sumbawa), Koepang (Timor), Darwin, Groote Eylandt, and Thursday Island (all Northern Territories of Australia), Port Moresby and Samarai (New Guinea), Gizo and Tulagi (Soloman Is), Vanikoa (Santa Cruz Island), Vila (New Hebrides), Lautoka (western Fiji), and Suva.

Whilst the Singapores were en route, preparations in Fiji were proceeding in anticipation of their arrival. On November 9 the Pan American Clipper "Pacific" arrived at Lauthala Bay near Suva from Canton on the inaugural air mail flight into Fiji. It departed for Noumea the following day, but this was the first use of the Lauthala-Bay alighting area and, fortunately, the temporary mooring and servicing facilities at Princes Landing in Suva harbour were found satisfactory. Further use was made of the alighting area on the 14th when the TEAL (Tasman Empire Airways Ltd) Short S 23 Empire boat ZK-AMC "Awarua" arrived direct from Auckland bringing the New Zealand Minister of Defence and his party. Later that day, Fg Off Winefield eased K6916 onto the water off Suva. The first element of the RNZAF's

Fijian patrol force was at last in place. K6917 arrived on the 18th to complete the first delivery.

On November 18, No 5 Squadron RNZAF was officially formed with Sqn Ldr Lewis as its first CO. The unit initially consisted of three other pilots - Flt Lts WJ Craig (an RAF liaison officer) and Hickson, Fg Off Winefield, an RAF Technical Officer (Plt Off T E M Hull), and 24 airmen. The squadron ground crew then began giving the Singapores a thorough servicing after their lengthy flight, though due to an absence of guns they were not operationally for several weeks. During this time, the aircraft received their squadron codes: K6916 became OT-B and K6917 OT-C.

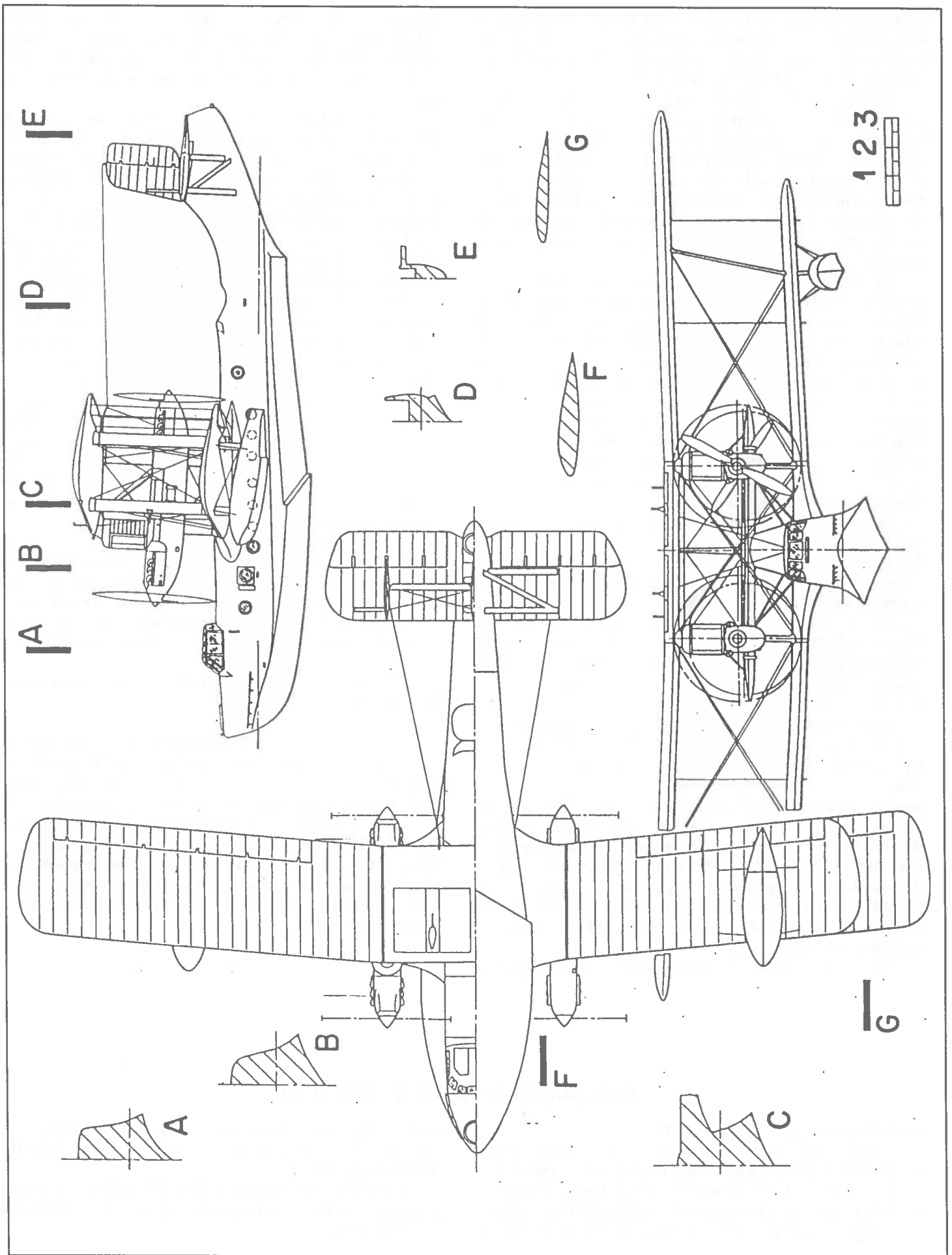
With the tensions in South East Asia rising, on 1 December the second Ferry Flight in Singapore, under Sqn Ldr Baird, was placed at the disposal of HQ Far East and attached to No 205 Squadron. The Japanese landed on the Malay peninsula on December 7 and during the day both RNZAF Singapores flew uneventful operational patrols. On the 10th they gave reconnaissance support to Force Z (HMS Prince of Wales and HMS Repulse), but had returned to base before the vessels were attacked and sunk later in the day. After these two missions, the aircraft were prepared at Seletar and left on December 13 for long flight to Fiji. K6912 was captained by Flt Lt Craig (who had returned to Singapore from Fiji) and K6918 by Flt Lt R.B.L. MacGregor. The route was the same as the previous delivery.

Flying in Fiji began on December 15 when Sqn Ldr Lewis and crew in K6916/OT-B flew a survey sortie to examine proposed RDF (radar) sites. Two days later disaster struck. During takeoff from Suva, on a trip to Nandi by Sqn Ldr Lewis in K6916, a creeping elevator trim became evident and the takeoff was aborted. Unfortunately, the Singapore overran the surveyed alighting area and ran onto a mud bank and was severely damaged. The repair was judged as beyond local resources and in spite of several efforts, it was written off in July 1942.

Notwithstanding this loss, No 5 Squadron continued to expand with some 90 airmen arriving in Fiji on December 19. Finally, on Christmas Eve, the remaining two aircraft arrived; K6912 became OT-A and K6918 OT-D. This welcome Christmas present now gave No 5 Squadron more than the semblance of an operational unit. Fourteen more airmen arrived on Boxing Day to bring the squadron to near full strength.

No 5's main tasks were to be convoy and shipping escorts, antisubmarine patrols, and surface surveillance to shadow any possible surface raiders. It was also tasked with communications flights between the various islands and atolls and fighter direction in cooperations with US fighters.

The squadron's first operational flight from Fiji came on January 6 1942 when K6912/OT-A, flown by Flt Lt MacGregor with Plt Off Scott as copilot and 4 crew, flew an antisubmarine patrol. These patrols then continued almost daily and on the 12th the newly promoted Sqn Ldr Craig became CO. On January 30, standing patrols under operation order SA 9/41 began, these being set routes around key areas of the Fijian Islands and their approaches. Antisubmarine escorts to shipping were also mounted as required. Nothing of note was found, though all the time No 5's efficiency in the patrol role improved. On February 14, Sqn Ldr R.H.F. Hickson became CO, but he handed com-



mand to Sqn Ldr R.J.R.H. MacGill on April 5. The routine of antisubmarine patrols and shipping escorts continued, one break to the routine being the inspection of the unit by the Governor General of New Zealand on 27 May.

Although formed for maritime work, on June 24 No 5 Squadron was redesignated as No 5 (Army Cooperation) Squadron. It now comprised of the GR Flight with the three Singapores at Princes Landing and a Vincent Flight (formerly of No 4 Squadron) with four aircraft at Nandi and five at Nausori. The squadron's HQ also moved to the latter location. The Vincents, in addition to cooperating with Army units in the islands, also supplemented the Singapores by flying inshore maritime patrols.

On July 10, Flt Lt MacGregor and crew in K6912/OT-A provided an antisubmarine escort for the departure of the 'Thomas Jefferson' from Suva. The crew sighted a surfaced submarine and attacked, dropping a single 250 lb on the rapidly submerging vessel. The submarine was seen to go down vertically and was claimed as damaged. The search continued and a Vincent was despatched from Nausori, but nothing further was seen. A further break to routine patrols was on the 25th after 4 Squadron Hudson NZ2208 carrying General O.H. Mead, the former commander of all forces in Fiji and Tonga, went missing on a flight to Tonga. In spite of an intensive search by the Singapores, no trace was found.

At this time, with the Japanese thrusting deep into the South Pacific, even Fiji appeared threatened and maritime patrols in the area increased in importance. Fiji received a welcome reinforcement on August 1 when US Navy Patrol Squadron VP 11, equipped with Catalinas, became established at Suweni Bay between Nandi and Lautoka on the western side of the main Fijian island of Viti Levu. Antisubmarine escort and patrol areas were divided between the two units. No 5 Squadron underwent a further change of title at the end of August when it was restyled as a 'Bomber Reconnaissance' squadron.

Little changed since the squadron continued its patrol work over the South Pacific, seeing no action and suffering increasingly from the age of its equipment and a shortage of Singapore spares. On September 13, the flying boats and the squadron HQ moved to the now completed base at Lauthala Bay and continued operations from there with the hangarage and improved facilities being most welcome. Problems with the Singapores were increasing and K6917/OT-C was withdrawn and scrapped. Patrols with the remaining two Singapores continued until, on November 27, Flt Lt MacGregor and crew in K6918/OT-D made No 5's final operational Singapore patrol and the Singapores were beached awaiting disposal.

At the same time, the Vincents were concentrated at

Nausori and No 5 Squadron came under command of Flt Lt G.K.D. MacKenzie. The five remaining land planes, NZ307, NZ338, NZ348, NZ355, and NZ358, were also suffering serviceability problems and managed only seven sorties during December.

Finally, on January 22 1943, No 5 Squadron was formerly disbanded; three Vincents and two crews were transferred to No 4 Squadron and the remaining aircraft and personnel were withdrawn to New Zealand, and the surviving two Singapores remained unused at Lauthala Bay. However, the planned deployment of RNZAF Catalinas to Fiji was delayed. Thus, in late February, a Singapore Flying Boat Flight was formed at Lauthala Bay under Squadron Leader MacGregor as an interim measure pending the arrival of No 6 Squadron's Catalinas.

The Flight commenced operations on 2 March when MacGregor's crew in K6912 flew an uneventful patrol. Over the next six weeks, some 22 individual patrols from Lauthala Bay were flown by the Flight's Singapores; the final one being by MacGregor's crew in K6912 on April 16. Mechanical problems and a chronic shortage of spares then forced their final withdrawal. After efforts to scrap them had failed, the two vintage Singapores were filled with concrete and towed into the bay where they were scuttled, a sad end for the last of the type to see operational use and to the apparent chagrin of the local Fijian populace who had become very attached to the large and impressive biplanes!

The Short Singapore's Fijian sojourn was over, but ironically, one week after the scuttling, a freighter docked at Suva full of Singapore spares shipped out from Britain! The replacement unit, No 6 Squadron finally was formed on May 25 and the ex-Flying Boat Flight personnel transferred to the new unit, Sqn Ldr MacGregor becoming one of the Flight Commanders.

Andy Thomas, Wynyard House, 6 Boston Road, Heckington, Linc. NG34 9JE, England.

[Editor's note: The sale drawings for the Short Singapore were provided by Bob Banka of **Scale Model Research**, 3114 Yukon Ave., Costa Mesa, CA 92626, USA. Bob's **Aircraft Documentation and Resource Guide** is a catalog of 35,000 3-view line drawings and 7,800 color Foto Packs that he has for sale. The Guide costs \$8.00 USA, \$10 Canada & Mexico, and \$18 all other countries. A similar drawing was sent in by Gene Falada of **Sea-Clusion Aeronautics**, 22W070 Byron Ave., Addison, IL 60101, USA. Gene provides "giant scale" RC plans for Maritime Aircraft.]

## Paraguayan Air Force Fokker T-21

**Photo Captions** (photos on page 110)

- FAP Fokker T-21 0027 still in the Galeão Factory in Rio, before delivery to Paraguay (Mario Roberto Vaz Carneiro)
- a. FAP Fokker T-21 0027 still in the Galeão Factory in Rio, before delivery to Paraguay (Mario Roberto Vaz Carneiro)
- a group of FAP cadets (in dark uniform) and instructors

(in light blue shirt can blue pants) in front of the flight line of Fokker T-21s at Ñu-Guazú AFB in 1972. (Col. DEM (SR) Agustín Olmedo)

d. A cadet and an instructor aboard T-21 0029 about to start a training mission at Ñu-Guazú AFB in 1972. (Col. DEM (SR) Agustín Olmedo)



# Paraguayan Air Force Fokker T-21

Antonio Luis Sapienza

The Fokker T-21 is the Brazilian-built version of the Fokker S.11 "Instructor". A total of 100 T-21 were licence-built at the Galeão Factory in Brazil for the Força Aérea Brasileira (FAB). They were in active service as primary trainers in the FAB from 1958 to 1973. They were simple to build and maintain, and although they were considered a robust plane, but with the 190-hp Lycoming O-435A engine it was "under powered" and the range was considered insufficient due to size of the Brazilian.

At the beginning of the 1970s, the FAB started to retire the T-21. Many of them were sold to private owners and they continued flying for many more years with Brazilian Aeroclubs. Some were sold abroad and eight of these ended their days in Paraguay. This is the story of their brief, but not too happy, story use in Paraguay.

In the 1960s, the primary trainers used by the Paraguayan Air Force were still the Fairchild PT-19 and its Brazilian-built version, the Galeão PT-3FG, of which a total of 14 had been acquired between 1956 and 1959. These aircraft were the backbone of the Training and Transport Air Group (GAET). In the early 1970s, the PT-1/PT-3FGs were outdated and, since the budget assigned for the purchase of replacements were very skimpy, there were not many options. So, the FAP decided to buy eight Fokker T-21 from Brazil.

It was not possible to determine their construction numbers, and, therefore, to find their original FAB identities. Nothing was found in the FAP archives and when consulting my very good friend and expert FAB historian, Col. Aparecido Camazano Alamino, he could not find anything in the FAB files either. When documents on the purchase of an airplanes and its identification plate "disappear", it is obviously there is something to hide and that not everything was legal.

Well, anyway, the eight Fokker T-21 for the FAP were completely overhauled at Galeão where they received new colors, roundels and serials. The FAP T21s were serialled 0025, 0027, 0029, 0031, 0033, 0035, 0037 and 0039. They kept the overall bare metal color scheme. The Paraguayan roundels were painted in two wing positions: upper left and lower right and the serial appeared in black square numbers in the opposite positions on the wings: upper right and lower left. The serial was also painted on both sides of the fuselage, right behind the cockpit followed by a wide diagonal orange stripe. The wing tips were also painted orange. The Paraguayan flag colors were on the rudder with a yellow star on the white stripe. "T-21" was applied on the vertical stabilizer in black characters, and the anti-glare panel was matt black. The propeller was black with yellow tips.

The Fokker T-21s were delivered to the FAP in May of 1972. On May 23, they were officially received by the FAP authorities at the Ñu-Guazú AFB near Asunción. All the remaining PT-19/PT-3FG were wfu (withdrawn drawn from use) and primary training switched to the new T-21s. Cadets and instructors were very happy to have a "new" aircraft for training, but this happiness was soon going to fade.

In 1973, just a year after acquisition of the T-21, the first three Fokkers were lost in a fatal accident. T-21 0029 and 0031 were performing their training routines when, after a break

maneuver, T-21 0031 could not recover and it crashed near Ñu-Guazú AFB. Both the Cadet and the instructor, Lt. PAM Santiago Benitez Ferschenko, were killed. A year later, T-21 0037 was lost in a similar accident in which its two crew members were killed. Also in 1974, T-21 0025 crashed killing a Cadet and an instructor, 1st. Lt. PAM Jorge Estigarribia.

In spite of these three fatal accidents, training continued with the Fokker, which were from then on to be known to the instructors and Cadets as the "Cadet Killer". The FAP Commander, with the authorization of the President of Paraguay, decided to buy new trainers to replace the T-21s. So, in 1975, eight Aerotec T-23 "Uirapuru" were acquired (and six more in 1986) for the Training and Transport Air Group (GAET). The FAP would know better years with the T-23 since no lives were lost due to accidents in more than twenty years of service.

The last five T-21 in flying conditions were retired from active service in 1977. Four were scrapped and one was kept as a "gate guardian", but ironically, not for a FAP base, but for the National Institute of Civil Aeronautics (INAC), where it is still kept in fair conditions.

Plane	Destiny	Plane	Destiny
0025	w/o 1974	0033	Scraped
0027	Preserved	0035	Scraped
0029	Scrapped	0037	w/o 1974
0031	w/o 1973	0039	Scraped

## Fokker S.11/T-21 model kits

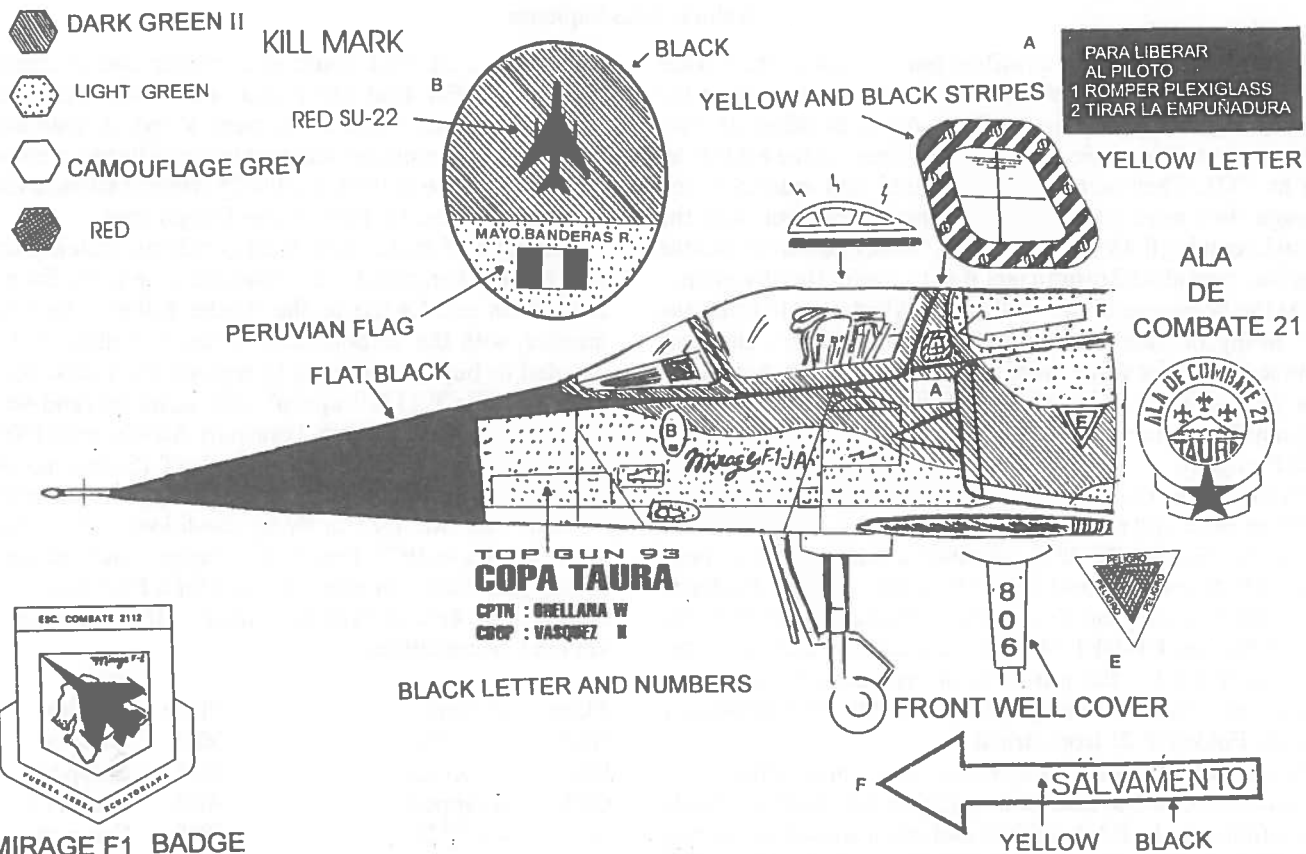
There are two possibilities of building model of a Paraguayan Fokker T-21. Some years ago, the Dutch firm MASTER MODELS released a 1/72-scale resin kit of the Fokker S.11 (with the possibility of building the S.12). This kit is excellent. The other option is the old 1/50-scale injection-molded SMER kit which is not as accurate as the previous described kit. For the Paraguayan roundels, you can use French WWI roundels, and for the serials, black square numbers are perfect. The Paraguayan flag colors in the rudder can be painted, as well as the yellow star on the white stripe. Truly a Small Air Force plane for your collection, isn't it?. For further details, please contact me at the address below.

## Acknowledgements

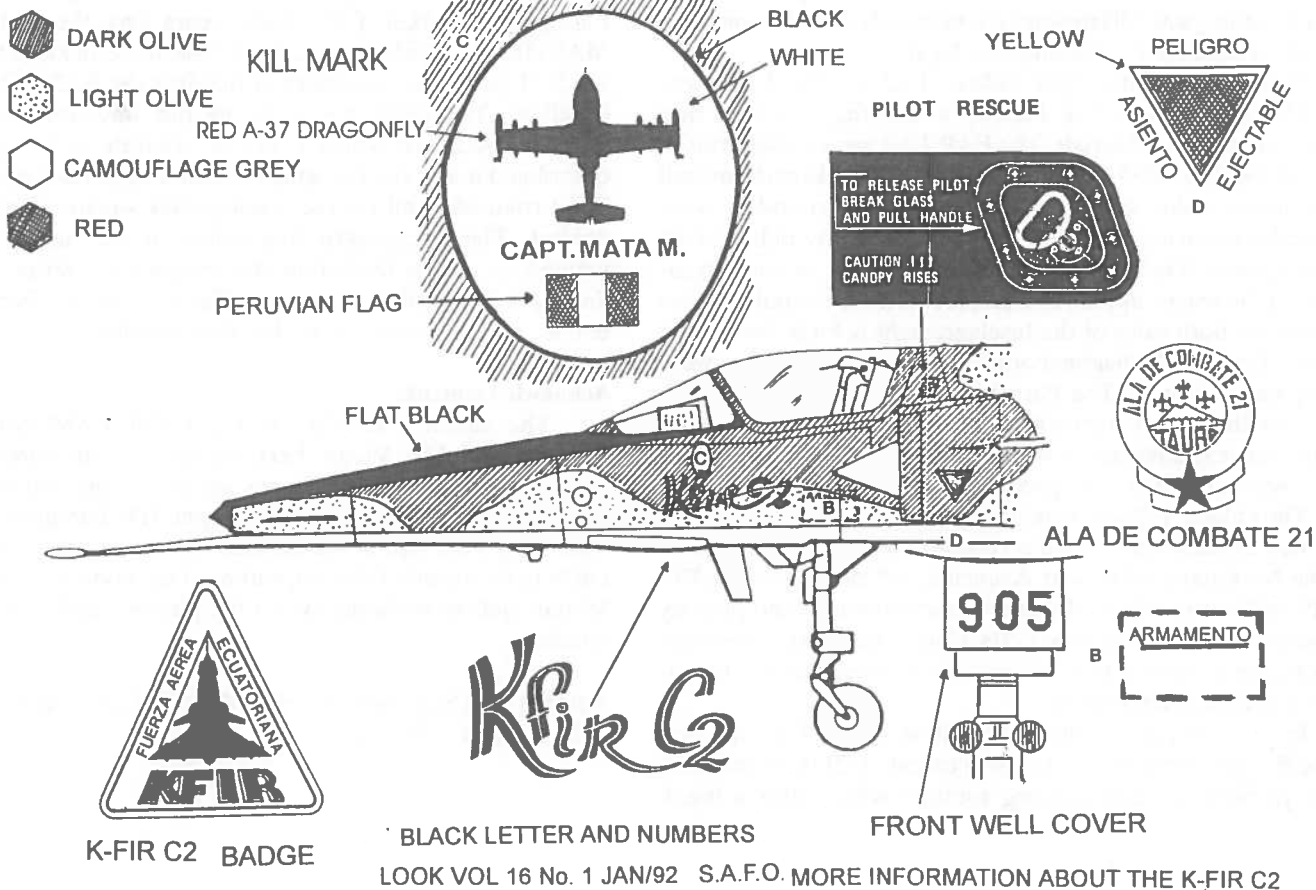
The author would like to thank Col. PAM (SR) René Ferreira and Mr. Victor Ferreira for the information they provided for the article. Thanks are also expressed to Mario Roberto Vaz Carneiro who photographed the Paraguayan T-21s when they were still in the Galeão Factory in Rio and to Col. DEM (SR) Agustín Olmedo, author of the book "History of the Military School in Paraguay" for the photos kindly lent for this article.

Antonio Luis Sapienza, (SAFCH #1160), Casilla de Correo 2721, Asunción, Paraguay.

## MIRAGE F1-JA ESCUADRON 2112 FUERZA AEREA ECUATORIANA



## K-FIR C2 ESCUADRON 2113 FUERZA AEREA ECUATORIANA





I will delay this temptation until the review of the Broplan kit of the W-33 that follows.) The Broplan kit of the IVL A.22 is a must for anyone building a collection of Finnish aircraft in 1/72-scale. It is also recommended to anyone who like building aircraft without wheels. You don't even have to build it on floats since about half the photos in the above mentioned reference show the aircraft on skis. Several of these photos clearly show the attachment of the skis to the struts. The construction of these in 1/72-scale should be an interesting challenge to even the most experienced modeler.

Review kit provided by Janusz Brozek of Broplan.

**Hansa Brandenburg W-33**, 1/72-scale vacuform-molded kit with injection-molded parts. Broplan MS-71. Janusz Brozek, ul. Pilotow 10G/33, 80-460 Gdansk, Poland.

Since this kit closely resembles Broplan's kit of the A.22 reviewed above, there is no need to repeat the comments about the quality of the molding and the instruction sheet. Instead, the differences between the A.22 and W-33 kits will be highlighted. While

the A.22 has a fully-enclosed engine, the W-33 has an exposed Mercedes engine that, in the Broplan kit of the W-33, is represented by 5 parts which will require additional detailing to make a convincing replica. An AeroClub replacement could save a lot of time and result in a better-looking model. Another difference is the radiator which on the A.22 sit in front of the engine, but on the W-33 hangs under the fuselage immediately in front of the float struts. The Broplan kits correctly provide these radiators as injection-molded parts. Finally, the cutouts in the trailing edge of the wing is different for the A.22 and W-33 and these are correctly represented in these kits.

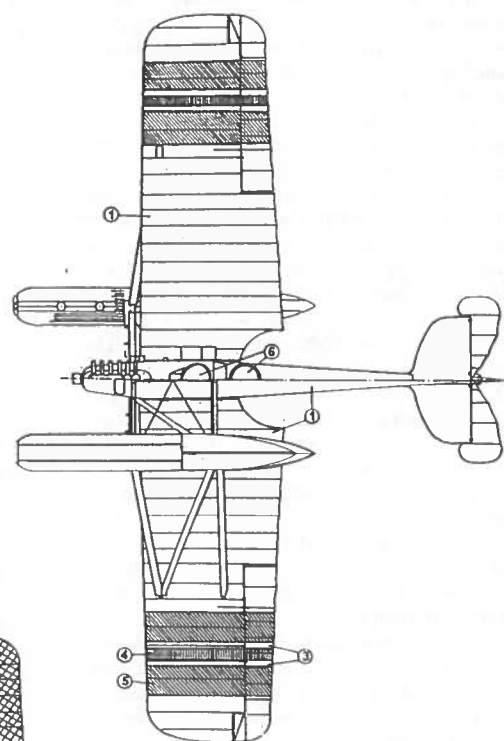
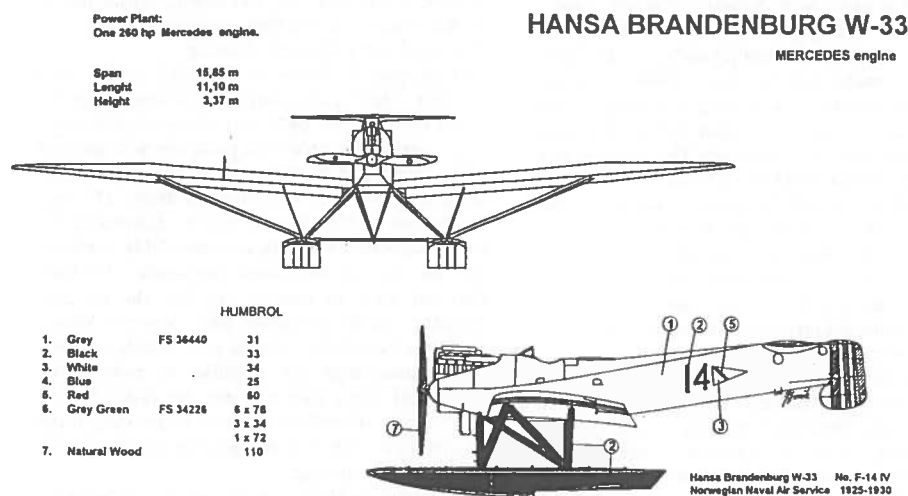
The instruction sheet for the W-33 provides a 3-view scale drawing (again in 1/83 scale) of a Norwegian Naval Air Service 'F-14 IV' 1925-1930. Again, no decals are provided.

One cannot help but to compare these two Broplan vacuform kits to the injection-molded kit of the Hansa Brandenburg W-29 from Toko. For ease of construction and definition of detail, the Toko kit wins hands down, but Toko kits also embarrasses a lot of the injection-molded kits from the top-

ranked manufacturers. The advantage of the Broplan kits is that they accurately represent other versions of the Heinkel floatplane. The true enthusiast will want to build all three kits, finishing the Toko kit in the Danish markings provided in that kit. The Norwegian decals provided with the Toko kit can then be used to finish the Broplan W-33 in Norwegian markings. The Broplan A.22 can then be finished in Finnish markings using "after market" decals from GAL. Then, the old Miekraft kit of the W.29 can be modified into a A.22 using the Broplan kit as a template and finished with Latvian insignia from the Propagteam decals for the Letov S-16. These should make a devastatingly-attractive foursome that will enhance any display of the aircraft of the small countries.

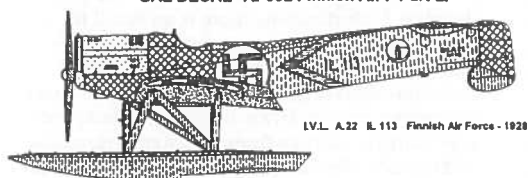
[Editor's note: Then on what small-air-force aircraft can I use the lozenge decals left over from the Toko and Miekraft kits? Did any of the German aircraft acquired by the Polish Navy after 1918 use this lozenge fabric?]

Review kit provided by Janusz Brozek of Broplan.



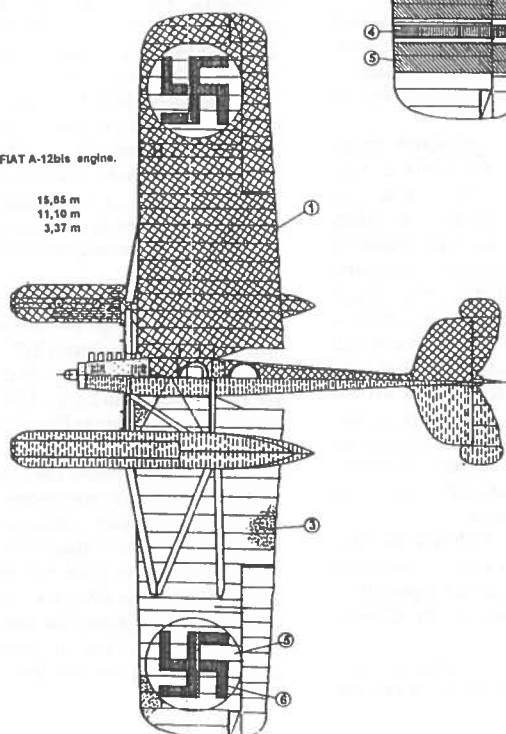
## I.V.L. A.22 Hansa

Markings:  
GAL DECAL 72-002 Finnish A.F. Part 2.

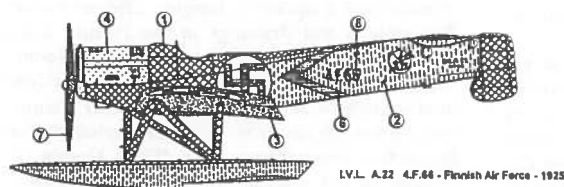


Power Plant:  
One 340 hp FIAT A-12bis engine.

Span 18,86 m  
Length 11,10 m  
Height 3,37 m



- |                    |          |
|--------------------|----------|
| 1. Dark Grey       | FS 36173 |
| 2. Light Grey      | FS 28430 |
| 3. Light yellowish | FS 23687 |
| 4. Lacquered linen |          |
| 5. Natural Metal   |          |
| 6. White           |          |
| 7. Blue            |          |
| 8. Natural Wood    |          |
| 9. Black           |          |





**Aviacao Militar Brasileira**, 1/32-scale decals. #32-02 FCM, Web site: [webpace.com.br/fcm](http://webpace.com.br/fcm)  
Most modelers of the aircraft of the small air forces seem to be interested in 1/72-scale aircraft rather than the larger scale. This preference is probably because they are more interested in markings and color schemes than intricate details. Therefore, this 1/32-scale sheet from FCM of Brazil will have limited appeal to SAFO readers. However, it is an excellent sheet of some colorful aircraft and it certainly deserves our attention.

The large (14.5 cm by 20 cm) sheet has all the national insignia, squadron insignia, serial numbers, anchors, titles, warning triangle & arrows, and stencilling to complete four different aircraft: (1) Skyhawk AF-1 'N-1001' of the Brazilian Navy with cloud gray (FS26314) and mid gray (FS26187) upper surfaces and light gray (FS26515) under surfaces. (2) Tiger Moth '2-1-10' overall aluminum (FS17178). (3) F-5E '4877' of the Força Aerea Brasileira in overall gray (FS35526) with low-vis squadron insignia for 1<sup>o</sup>/14<sup>o</sup> GAv. And (4) Kawasaki Bell 47G "Sakura" 'N-7007' in overall white (FS27875).

The 4-page instruction sheet is printed in color and has sufficient views of each aircraft to show the placement of all markings and stencilling. All colors are identified by their FS 595 equivalents and there is a list of recommended kits. The decals are to the usual outstanding FCM standard: well printed, perfect register, dense colors, and readable stencilling.

Even if you don't go for large-scale modeling, you should recommend these decals to your friends who do. They might enjoy building something with a small-air-force flavor and their finished models will add some pizzazz to the display table at your next club meeting. And who knows, maybe you can talk them out of the unused portion of this sheet. Some of the smaller decals should work well on 1/72-scale models of larger Brazilian aircraft.

Review sample provided by Antonio Linhares of IPMS-Brazil.

**Polish Military Helicopters** 1/72-scale decals with 24-page booklet. InTech ul. K. Zemaitisa 12, 30-252 Krakow, Poland.

This decal/booklet seems to be a concept unique to InTech. However, it is a concept that should be more imitated. Combining a quality decal sheet with an informative booklet containing color and b&w photos and color side-view and multi-view drawings provides the modeler with the ultimate in information. An earlier InTech decal/booklet on Polish aircraft 1918-present was reviewed in SAFO and received high praise. This release is, anything, better, but the topic may limit sales outside of Poland.

The A4-size booklet has sturdy card covers with color side-view drawings on the outside surfaces. The large (21 cm by 14 cm) decal sheet is fixed to the inside of the front cover. The 24-page booklet describes the color schemes for the 15 Polish helicopters covered by the decal sheet: (1) Mil Mi-1 white '1014' with olive-green upper surfaces and light-blue under surfaces, (2) PZL Mi-2T white '0216' in a dark green, sand, and light blue-grey camouflage with light blue-grey under surfaces, (3) PZL W-3RM Anakonda light grey '0510' in overall grey, (4) Bell 206B Jetranger III black '4153' in overall white with dark-blue trim, (5) PZL W-3 Sokol dark blue '0219' overall white with blue and yellow trim, (6) Mil Mi-24D white '208' standard camouflage of dark green and grey with light blue

under surfaces, (7) Mil Mi-14PS black '5137' in SAR scheme of overall white with large areas of red outlined in black, (8) Mil Mi-4 white '1' with olive-green upper surfaces and light-blue under surfaces, (9) Mil Mi-2T white '2539' with green upper surfaces, blue under surfaces, and broad blue/white bands on tail boom, (10) Mil Mi-14PL white '1007' with dark blue upper surfaces and light blue-grey under surfaces, (11) Mil Mi-8 white '639' in dark green, sand, and grey upper-surface camouflage and light-blue under surfaces, (12) Mil Mi-14PL white '1011' with blue grey, light blue-grey, and light grey-green upper surface camouflage and blue under surfaces, (13) PZL W-3W Sokol white '0617' in overall dark green and chocolate camouflage, (14) PZL Mi-2Sz white '1918' in overall dark green and chocolate camouflage with wide blue/white bands on tail boom, and (15) Mil Mi-8S white '633' in dark-green upper surfaces with light-blue under surfaces and broad blue/white band on tail boom.

Each aircraft is covered with a short Polish/English text, multi-view b&w drawing, several b&w photos, at least one color photo, and a color side-view drawing. The color side-view drawings are excellent, the reproduction of the 20 color photos is outstanding, and the 34 b&w photos show both the entire aircraft and close-up of details.

I was particularly attracted to "PZL W-3RM Anakonda, light grey 510, Handed over by 103rd Air regiment to Special Task Force Group 'THUNDER' 1998. Unfortunately, destroyed only couple days after hand over during exercise. Repainted in WZL-3 in Bydgoszcz to overall grey (FS37200) it received most probably first Polish low visibility markings consisting of light grey (FS36622) chessboards and tactical number 510. Note: under surface chessboard reversed by 90 degrees! Recommended Model: TOP GUN (Poland). Sources: Modelarz 8/97, Fanatyk Plastyku 14, Aero Plastic Kit Review nr 67, Nowa Technika Wojskowa 9/93, 5/98." The text is accompanied by a b&w side- and bottom-view drawings, a b&w and a color photo, and a color side-view drawing. The decals sheet includes all markings, including the grey chessboards and the '0510' serial numbers. Another attract scheme: "PZL W-3 Sokol dark blue 0218. One of the early production samples in service with the Polish Navy repainted in 1998 with dark blue (FS15050) and yellow (FS13655) elements as shown on drawings and photos. Recommended model: TOP GUN (Polish). Sources: Modelarz 8/97, Fanatyk Plastyku 14, Aero Plastic Kit Review 67, Nowa Technika Wojskowa 9/93, 5/98." The decals include the chessboards, serial number, "Danger" arrow, large "Navy" for the tail boom, anchor insignia, and inscriptions "Polish Navy" & "Marynarka Wojenna RP".

The decals are in perfect register with strong, dense colors, detailed unit badges, and readable inscriptions. Chessboards are provided for all 15 models. The InTech decals for Polish Helicopters can be highly recommended to any modeler specializing in small-air-force helicopters, especially those who have the perseverance to hunt down the appropriate kits. For modelers outside of Poland, the Jetranger, Mi-24, and Mi-8 should be no problem, but others will require either a good import hobby shop, access to a dealer on the Web, or a friend in Poland. Other modelers may wish to obtain this informative booklet and probably build a couple of models using the more readily accessible kit.

InTech will be releasing kits of the PZL Mi-2 in

three version (Autumn 1999) and two version of the PZL W-3 (early 2000).

Review sample provided by Wojciech Butrycz of InTech.

**Bolivian Air Force: Gran Chaco Air War #2**, 1/72-scale decals. Blue Rider BR-0255. Blue Rider Publications, 43a Glasford Street, London SW17 9HL, England. E-mail: [insigniamag@yahoo.com](mailto:insigniamag@yahoo.com). Web Site: <http://members.xoom.com/insigniamag>.

Blue Rider continues it series on the Gran Chaco War with the 11 cm by 20 cm sheet of decals for Bolivian aircraft. National insignia (red/yellow/green roundels) and rudder stripes, serial numbers, inscriptions, and personal insignia are provided for the following aircraft: (1) Curtiss Hawk II '30' (or '36' with Maltese cross personal insignia). (2) Airco DH9 'AM-1'. (3) Breguet 19 'Potosi'. (4) Breguet 19 'Boqueron'. (5) Ford 5-AT Trimotor 'NC9654'. And, (6) Junkers F13 'Beni' either with or without floats. The one-page instruction sheets has side-view drawings and scrap views of the wings showing the camouflage schemes and decal placement for all aircraft. The decals are to Blue Riders excellent standard, so no further comments are need on this point.

Kits are available for all these aircraft, although the DH9 and Breguet 19 may be difficult to find. The Hawk II, in particular offers the opportunity to build the Monogram F11C in something other than USN colors. [Editor's note: In my opinion, the Monogram F11C is still one of the finest 1/72-scale kits ever kitted.] Unfortunately, the Ford Trimotor is devoid of national markings, so unless you have a lot of these in the "loft", you'll probably want to wait for more colorful decals for the Trimotor in some other country's markings.

Blue Rider's Bolivian decals are recommended to any modeler building a collection either of small air wars, South American air forces, or between-the-wars aircraft. It is also recommended to any modeler just wanting to add something unusual to his/her collection.

Review sample provided by Richard Humberstone of Blue Rider.

**Red Army of China 1945-46**, 1/72-scale decals. Blue Rider BR-0414. Blue Rider Publications, 43a Glasford Street, London SW17 9HL, England. E-mail: [insigniamag@yahoo.com](mailto:insigniamag@yahoo.com). Web Site: <http://members.xoom.com/insigniamag>.

This 11 cm by 12.5 cm sheet provides the national insignia and tail stripes for three aircraft operated by the Communist Chinese immediately after the end of WWII. The national insignia consists of a red-bordered white disc inscribed with a 5-pointed red star which, in turn, is inscribed with a Chinese character resembling the Greek letter "phi". The tail markings are red and white horizontal stripes. Aircraft covered are the Ki-43 Oscar, Ki-45 Nick, and Ki-46 Dinah. The one-page instruction sheets has side-view drawings and scrap views of the wings showing the camouflage schemes and decal placement for all three aircraft. The decals are to Blue Riders excellent standard, so no further comments are need on this point.

Here is an excellent excuse for you modelers of the small air forces to retrieve those Japanese kits you've squirreled away and build a trio of models that will confound your know-it-all modeling buddies.

Review sample provided by Richard Humberstone of Blue Rider.

**AB Flygindustri i Limhamn 1925-1935**, by Lenart Andersson.

In the series, *Flyghistorisk Revy*, published by Svensk Flyghistorisk Förening (Swedish Aviation Historical Society), the history of Junkers aircraft production in Sweden is told.

Reading this book generates awe. This is real original aviation research, where the author has consulted various archives and compared documents from different sources. Thus, the book becomes a reference work for all the future. The thorough work also enables the book to be read as a document of the time, containing as much intrigue as any crime novel.

The book is structured with initially a chronological treatment of the factory and its activities, one chapter per year. Then follow chapters on the various users distributed geographically, finally chapters on the various aircraft types involved. Interspersed with this you will find tables with everything from Junkers' own factory pilots to aircraft construction numbers.

Why did Hugo Junkers establish himself in Sweden? This is connected with the limited possibilities for building aircraft in general, and combat aircraft in particular, in Germany after WWI. And, when one now had begun to circumvent rules, one might as well continue. The author documents one example after another of false certificates of origin, declaration of fronts as buyers to get export permission, false customs information to avoid paying Swedish import duty, sale of used aircraft as new ones, hiding production facts for the Allied control commission, plus declaration of false country of origin to enjoy national support schemes meant for national airlines. Additionally, great effort was made to keep the staff on the base factory in Dessau intact. Thus, the Swedish workers were fired and re-hired as needed when production volumes varied. Minor items as certificates of airworthiness and official registration were not always awaited when aircraft had to be test flown or transferred between Sweden and Germany. There were signed contracts of supply with both warring parties in the emerging Chinese civil war - this gave give problems in fulfilling contractual deliveries.

The official export statistics only showed modest similarity with reality. As an example, in 1925 according to the statistics two aircraft were exported to Denmark. In the same year export licenses to Denmark were, in fact, obtained for 2 plus 3 24 (airliners). The three G 24 were, in reality, K 30 bombers going to Russia.

The test flight registration S-80 was recycled on many aircraft. However, this may have been legal. Simultaneously while not adhering to Swedish rules, Hugo Junkers did not want to submit to the national socialist ones either. In December 1933, he was banished from his factory and a little later put in house arrest in his home. He died roughly a year later.

From 1924 onwards, several airlines were established, including Dansk Lufttransport A/S and ABA in Denmark and Sweden, respectively. They were all centrally controlled from the main office in Dessau. Outwards, it was stressed that they were NOT controlled from abroad; according to Swedish legislation of the period, foreign majority share holding was illegal. Notably, an aircraft taken over by ABA in 1927 could also be found in internal status papers in Dessau! Junkers' ownership of ABA ended in 1930 in connection with reorganizing the company's capital - interestingly, from then on the company began to supplement its fleet with Fokker aircraft.

For the first time reader, aircraft designations may seem chaotic. Whether one or the other designation was used often depended on who the discussion partner was - it depended on the message to be brought across. The Junkers G 23 was a G 24 with weaker engines (to get permission to build the aircraft in Germany). Additionally a single-engined version was built with the designation F 24. The military version (bomber with machine gun armament) was named K 30, but also R 42 by AB Flygindustri (transposition of the two digits was also used for several other types). Most K 30 were built for the Soviet Union (where they were called JuG-1).

The K 30 aircraft had their fuselage center section built in Limhamn. The rest of the aircraft was built in Germany, upon which joining the sections, registration and test flying was done in Sweden. Only beginning in 1929, were some aircraft entirely built in Limhamn; most of these were W 34 in the years 1934-35.

With Junkers exporting to the whole world, small-air-forces enthusiasts can find valuable photos and information. Examples: Swedish F 13 on floats and skis plus W 33 on floats plus W 34 on wheels and floats (all ambulance aircraft); Turkish A 20; Chilean K 30; Finnish K 43 on floats and wheels, K 43 for Portugal, Colombia, Venezuela and Argentina. Even the railway enthusiast can enjoy K 43 JU-127 being loaded onto a flatcar for transport to Finland.

The book comprises 159 pages in A4 format, hardbound. ISSN 0345-3413. Text is in Swedish with a nine-page summary in English. Both printing and paper quality is the very best possible. Illustrations (all in black and white) mostly comprise photos, additionally 1/100 scale line drawings by L. E. Lundin cover Junkers G 24 and K 30, A 20/R 02/A 35/K 53 plus K 43.

Kai Willadsen (SAFCH #863), Sankt Jørgens Gade 16, 4200 Slagelse, Denmark.

**PZL P.11** (cz. I), Glass, Kopanski, & Makowski. Monografie Lotnicze #36. AJ Press, PO Box 28, 81-209 Gdynia, Poland.

Review copy provided by Adam Jarski of AJ Press. Order by post: AJaKS, ul. Lubelska 30-32, 03-802 Warszawa, Poland. Or, by e-mail: ajaks@kki.net.pl. Payment by credit card or International Money Order.

In the October issue of SAFO, I nominated Denes Bernad's book of Rumanian (sic) Air Force in WWII for the Small-Air-Force Book of the Year Award. When AJ Press' books on the PZL 11 arrived on my desk, I was afraid that I would have to withdraw this nomination. Fortunately, these books were published in 1997 (I don't know how I missed them for such a long time) so they are not eligible for this year's award.

Fictitious awards aside, these two books are some of the best books I've come across in many years. Following the now well-established Monografie Lotnicze format of colorful cover painting, 60+ A4 pages consisting of Polish text, numerous photos, outstanding scale drawings, and beautiful color side-view drawings. Volume I (cz. I) describes the development of the P-11 series beginning with the prototype in 1931, the participation of the prototypes in various contests and exhibitions (Zurich Fighter Competition, 1932 Paris Salon, 1932 National Air Races in Cleveland, Ohio, 1934 Paris Salon, etc.), license production in Romania, and introduction into the Polish Air Force. This section occupies 24 pages and is illustrated with 61

photos, side-view drawings of 21 variants; and drawings showing the different windscreens; the different shapes of the wings, horizontal tails, and vertical tails; and performance curves. The second section, by Tomasz Kopanski, details squadron use of the P-11 up to 1939. This 12-page section contains several tables listing "evidence" numbers used by P-11a and P-11c in each squadron and is illustrated by 22 photos. The next 26 pages contain reproductions of original technical manuals for both the P-11a and P-11c with original photos of interior and exterior detail. Salted in these pages are new drawings of the engine, cockpit interior, instrument panel, and details such as the types of gun sights, wheels, propellers, and cowlings used on the various variants. These latter will be of particular interest to modelers, such as myself, who have been confounded by these subtle, but important differences. This section also includes the obligatory table of technical specifications.

One of the outstanding features of this excellent book is the 1/48-scale multi-view drawings. Three pages for the P-11c with port and starboard side views, top and bottom plan views, front and rear views, and cross sections. A similar treatment is given to the P-11a.

Four pages of color side-view drawings illustrate the P.11/IV, 6 P-11a in squadron markings, and 15 P-11c in squadron markings. Most of these are accompanied by enlarged views of the squadron insignia and scrap views of the wing showing the illusive under-wing numbers. Another page features a 4-view drawings of P-11c in the Krakow Museum. The back of the front cover has 5 color photos of the Museum aircraft and that back cover has color photo of the instrument panel of this same aircraft. (The large instrument with the orange face on the upper left corner of the instrument panel is something that must be included in any model of the P-11, even in 1/72-scale.)

AJ Press' book on the PZL P-11 (along with cz. II reviewed below) is a model of how an aircraft monograph should be written and it is recommended to all aviation enthusiasts no matter what their geographical and chronological preferences. It goes without saying that it is a must for anybody interested in Polish aviation and for all modelers planning to add a P-11 to their collection.

Review copy provided by Adam Jarski of AJ Press.

**PZL P.11** (cz. II), Glass, Kopanski, & Makowski. Monografie Lotnicze #37. AJ Press, PO Box 28, 81-209 Gdynia, Poland.

Review copy provided by Adam Jarski of AJ Press. Order by post: AJaKS, ul. Lubelska 30-32, 03-802 Warszawa, Poland. Or, by e-mail: ajaks@kki.net.pl. Payment by credit card or International Money Order.

This book, the second in AJ Press' two-volume coverage of the P-11, begins with the day-by-day chronicle of the P-11 in the September 1939 Campaign. This 41-page account, written by the well-known historian Tomasz Kopanski, contains 112 photos and two tables. The PAF enthusiast will recognize most of the photos in this section, but while most books will publish one photo of a particular aircraft, this book has up to five different views of the same subject. For example, a photo of German personnel examining a wrecked P-11c '3' has received much attention from modelers since the aircraft appears to have a multi-tone camouflage. Four photos of this aircraft reveals both the camouflage pattern and it's under-wing number '62-W'. The final photo in this section is a rare view of the Krakow's Museum P-11c when it

was in the Berlin Aviation Museum.

The next section describes the P-11 foreign service. This 22-page section has short paragraphs on the P-11's connection with Latvia, Germany, Portugal, Hungary (including 9 photos), and the USSR. However, the discussion of the Romanian P-11 occupies most of this section and includes 50 photos almost all never before seen by this reviewer. Three pages of superb 1/48-scale drawings show the P.11b-K, P.11b-L, and P.11f. Since the P.11b was based on the P-11a, modelers will have to wait for a kit of this variant before they can add a Romanian P-11b to their collect. (I was surprised to see that the -K had a much different nose configurations than either the P-11a or -11c. This is a 'must' conversion when the P-11a kit becomes available.) It is well known that the P.11f was a P-11c with a different engine, but these drawings are the first I've seen that will allow the conversion addit to produce an accurate cowling.

Four pages of color side-view drawings provide color schemes for 10 September Campaign P-11c with scrap views showing the markings on the upper and lower surfaces of the wings. The "camouflaged" P-11c is shown in a 2-tone camouflage with a dark green splinter pattern painted over standard Polish olive green. This is in better agreement with the photos that the multi-tone Luftwaffe-type camouflage that has dominated the modelling magazines for so many years. Color side-view drawings show the Hungarian P-11a both as G.191 and HA-NBN. Nine color side-view drawings show the Romanian P-11 in an bewildering assortment of markings and color schemes; some with the pre-war roundel in asymmetrical wings positions (a la PAF), aircraft in Polish olive green and dark green camouflage with St. Michel crosses in various sizes and positions, and a P-11f with post-war roundels. The back cover has a 4-view drawings of a Romanian P-11c with St. Michel cross and Eastern Front markings.

A final 3-page section describes the color schemes for the Polish, Romanian, and Hungarian P-11s. This section includes a table listing the unit, squadron insignia, fuselage number, evidence number, under-wing number (with colors) of 49 PAF P-11a and P-11c. Drawings are also given for the style of numbers carried by PAF, Romanian, and Hungarian P-11s. The PAF fuselage numbers varied significantly from squadron to squadron. The fastidious modeler will want to reduce these drawings to 1/72 scale and copy them onto white decal paper.

A large fold-out page provides a cut-away drawings of the P-11c, detailed drawings of the size and position of the PAF wing and tail chessboards, and full-scale(?) drawings of the technical data stenciled on the rudder. The inside covers have 9 photos of the Karkow Museum P-11c.

If your hobby budget allows you buy only one small-air-force book this year, but Denes Bernad's Roumanian book. Then take the grocery money and buy these two books on the PZL P-11. They're worth missing a couple of meals for.

Review copy provided by Adam Jarski of AJ Press.

**Polskie Lotnictwo Morskie 1920-56**, Konarski & Oleiko. *Kampanie Lotnicze* #19. AJ Press, PO Box 28, 81-209 Gdynia, Poland. Order by post: AJaKS, ul. Lubelska 30-32, 03-802 Warszawa, Poland. Or, by e-mail: ajaks@kki.net.pl. Payment by credit card or International Money Order.

Little has been written about Poland's small naval aviation. Perhaps this is because they played little role in the September Campaign. All that I've been able to find in my library are 5 pages in Jerzy Cynk's

"History of the Polish Air Force 1918-1968" with English text and 11 photos, and Jerzy Rozwadowski's 78-page monograph "Morski Dywizjon Lotniczy" with Polish text and 3-view drawings of all aircraft used between 1920 and 1939. Now, AJ Press fills the gap (at least the Polish-language gap) with this recent addition to their *Kampanie Lotnicze* series. This 76-page, A4-size, soft-bound book presents the story of the Polish Naval aviation from its beginnings in the newly independent Poland of 1920, to the disastrous events of September 1939, the exploits of 304 Squadron over the Atlantic from 1940 to 1949, and the activities of Polish naval aviation after WWII until 1956.

The Polish text is accompanied by numerous photos of aircraft, airmen, and bases: 111 for 1920-39, 10 for 1940-45, and 40 for 1946-56. Beside the evocative color cover painting of a Lublin R-XII '802', there are 7 pages of excellent color side-view drawings (31 aircraft). A listing of these latter will give some idea of the variety of interesting aircraft used: Albatros B-II '12', Friedrichshafen FF-33E '8', Friedrichshafen FF-33L '9', Latham 43 HB3 '3-4', Latham 43, CAMS-30E '2-3', Schreck FBA-17 HMT-2 '53', Nieuport-Macchi M-9 '23', Lublin R VIII ter '802', Lublin XIII bis '702', Lublin R XIII ter/G '714', Lublin R-XX, Nikol A-2, RWD-17W 'SP-BPB', CANT Z-506B, Wellington XIII HZ762 'G', Wellington XIV 'V-QD', Mosquito II NF 'EW-R', Jak-9P '4', Jak-9U '8', Jak-11 'S-2', Il-10 '7', Il-2 '4', UT-2 '1', Po-2 '3', CSS S-13 '11', An-2 '11110', Tu-2S '2', Pe-2FT '9', Lim-2 '1121', and Il-28R '03'. "Polskie Lotnictwo Morskie" is highly recommended to all students of Polish aviation and to all modelers building a 1/72-scale collection of Polish aircraft whether the emphasis is on pre WWII, WWII, or post WWII. The photos and color drawings will more than make up for any unfamiliarity with the Polish language.

Review copy provided by Adam Jarski of AJ Press.

**Estonian Air Force 1918-1940**, An Insignia Air Force Special with 1/72 scale decals. £9.50. Blue Rider Publications, 43a Glasford Street, London SW179HL, UK. E-mail: insigniamag@yahoo.com. Web site: <http://members.xoom.com/insigniamag>. In their series of "Air Force Specials" on the Baltic Republics, Blue Rider/Insignia follow their excellent Lithuanian book with one on the Estonian Air Force. (Their book on the Latvian Air Force is in preparation for publication in Spring 2000.) In the series standard 52-page A5-size format, the text provides a short but comprehensive survey of the

history of the Estonian Air Force from independence in 1918 to its annexation by the Soviet Union in 1940. (Readers desiring a more detailed history are advised to see Fritz Gerdessen's article in *Air Enthusiast* #18.) The text is complimented by five tables ("Aircraft of the Estonian Air Force 1920", "Equipment Assigned to Estonian Air Force Divisions 1925 to 1940", "Aircraft of the Air & Gas Defence League 1930-1937", "Aircraft of the Estonian Air Force 1918-1940" which lists individual aircraft by serial number, and "Aircraft of Strength 1939-40".

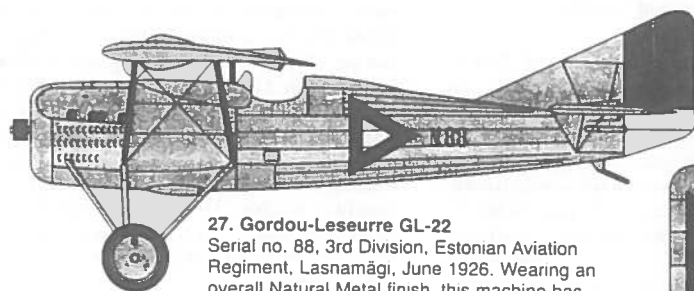
The bulk of the book, and its main attraction, are the photos and drawings. I counted 41 photos, 14 color side-view drawings, 34 b&w side-view drawings, and 5 two-view (side and top) drawings. Almost every aircraft type used is illustrated by either a photo or a drawing, usually both. Regrettably absent from the illustrations is the Hs 126B, 5 of which were received in 1939-40. Of particular interest, and new and exciting, to this reviewer are the side-view drawings of the BE2e, RE8, and Halberstadt CL.IV floatplane conversion, and the 2-view drawings for the Estonian aircraft of indigenous design (PON-1A, PN-3, & PTO-4).

For the modeler of the "what if" variety, the listing of aircraft "on order" but never delivered will give them a chance to exercise their ingenuity by applying Estonian markings to a Blenheim, Fokker G-1, PZL P-24, Spitfire, Wellesley, and Lysander.

The decals included with this book, consisting of two sheets (11 cm by 19.5 cm and 10.5 cm by 6.5), provide markings for (a) Sopwith Strutter, (b) Camel 'N66616', (c) Be2E 'C6983', (d) Avro 504K '18', (e) Halberstadt CL.V '62', (f) Spad VII '78', (g) Span VII '79', (h) Hart '152', and (i) Magister '159'. These decals are to the usually high standard of quality set by Blue Rider.

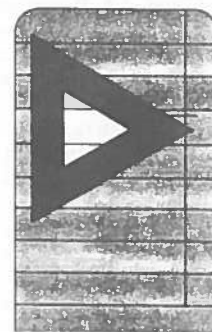
The "Estonian Air Force 1918-1940" is highly recommended to all students of the small air forces, especially those specializing in the period immediately before and during WWII. If you not a modeler, you can always pass on the decals to a friend who models the aircraft of the small air forces. Chances are that he will already have this book, but he will still appreciate the extra set of national markings.

[Editor's note: Blue Rider's earlier sheet on the Estonian AF BR207 includes decals for (a) DH.9 '32', (b) DH.9 '17', (c) DH.9 '27', (d) Bulldog '132', (e) Avro 504K '15', (f) Camel 'N6616', and (g) Avro 504R '115'. Unfortunately, these decals are no longer listed in the Blue Rider catalog. Note that the only "blue shadow" serial numbers are '132' for



27. Gordou-Leseurre GL-22

Serial no. 88, 3rd Division, Estonian Aviation Regiment, Lashmāgi, June 1926. Wearing an overall Natural Metal finish, this machine has standardised Estonian national insignia with no outlines in four wing positions, and on the fuselage sides. Estonian national colours are painted on the rudder. The serial number is rendered as 'N.88' in Black on the fuselage. Some aircraft in this colour scheme, including this one, have also been noted as having weight and loading tables on the rudder in White, after the style of French aircraft of the time.



a Bulldog and '152' for a Hart. Modelers unable to created the "blue shadow" effect of these unusually-shaped serials might consider realigning these serials to add a few other Estonian aircraft types to their collection, but they will be disappointed since the only other combinations are '123' and '125' both of which are Bulldogs.]

Errata to the Blue Rider booklet *Estonian Air Force 1918-1940*. Page 8: DFW C.V #11 was captured near Auciems in Latvia. Page 9: Serial numbers were introduced by order of Capt. Ots on 30 April 1919. #1 FF 41 (later #55); #2 HF.30; #3 Strutter; #4 M.16; #5 Camel; #6-7 Be; #8-9 NT2B. Added later were #10-11 DFW C.V; #12-13 Halb. C.V (#12 became #53); #14 Avro 504K (which crashed a few days after delivery in August 1919). Page 11: All photos were taken in Finland; the ones at the center and bottom on 10 March 1926 on departure from Santahamina. Page 12: Nothing is known of an aircraft captured at Pshkov (Pleskau/Pikha). The six Germans who were captured with the three aircraft on 8-9 June 1919 spent a harsh time in prison and internment. Page 13: Haas and observer Schultz flew 16 missions with DFW #10. Damm and Bergman flew a Be2E, not an Re8. The photo at the bottom of the page was taken at Santahamina on 10 March 1926 (as on page 11). Page 16: DFW #33-34 and AGO #35 were bought in Germany and arrived by ship on 4 October 1919. Page 21: Ots had to resign 30 September 1920. Capt. Steinberg was appointed on 28 March 1921. Page 29: Lt. Col. Tomberg became Air Defence Commander on 14 July 1930. Page 30: Photos of Han-riots with serials do exist. Page 32: One more OGL-2 was built; ES-ENN. The PON-1 was not exported to Latvia, but was built there under license. Page 39: The Lysander order was for ten aircraft. When this was cancelled, 12 Henschel Hs 126B could be ordered, 5 of which arrived in May 1940. The occupation prevented further deliveries. Page 41: Strutter #3 was captured 1 February 1919 and was s/n A2409. Page 42: #37 and #38 were Short 184. Page 44: #136 was an LVG C.V which remained from the dissolved Aeronaut company. Page 45: The first batch of Hs 126 to be delivered were #136-168, but #165 aborted due to engine trouble and never did arrive. The following types were studied but not ordered: Blenheim, Fokker G.1, PZL P-24, & Wellesley. Page 46: In Table 5, the number of Letovs should be 4 (not 7) and the 7 Harts are not mentioned. There were no Siskins left at this time.

F. Gerdessen (SAFCH #12), Fijnscheerstraat 12, 4204 ES Gorinchem, Nederland.

[Editor's note: See also the letter from Mr. Gerdessen elsewhere in this issue of SAFO.]

**Slovenia & Macedonia, Air Forces of Former Yugoslavia 1991-1999 - Part 2.** An Insignia Air Force Special with 1/72 scale decals. £9.50. Blue Rider Publications, 43a Glasford Street, London SW179HL, UK. E-mail: insigniamag@yahoo.com. Web site: <http://members.xoom.com/insigniamag> This is the second installment in the Blue Rider/Insignia "Air Forces of the Former Yugoslavia" series. In the standard 52-page, A5 format, this book starts with the capture of a Yugoslav Gazelle and Mi-8 in July 1991 and carries the story of the Slovenian and Macedonia Air Forces up to the present with the imminent acquisition of modern jet fighters by Macedonia, either Czech L-59 or Turkish F-5. The book contains a full listing of all Slovenian and Macedonian military and paramilitary serial numbers along with many photos and numerous side-view drawings. I

counted 37 photos, 12 color side-view drawings, 20 color drawings of insignia, 34 side-view drawings, 5 two-view drawings, and 2 tables of serial numbers. Since the Slovenian Gazelles and Macedonian Mi-8, have been well covered in Insignia Magazine #2 and #6, this reviewer was particularly turned on by the illustrations of the Bell 412s and Let L-410 in SFOR markings, the Pilatus PC-6 and PC-9 in the new Slovenian roundel (similar to that used by the Slovenian during their little war with Austria immediately following WWI), and the Macedonian Zlin 242. (The conversion of AeroTeam kit of the Z-142 into a Z-242 is not an easy job. The forward sweep of the wings in the kit would have to be removed, the wing tip reshaped, wheel spats added, and, worst of all, the entire nose area reshaped. This is probably fortunate, since the color scheme for the Macedonian aircraft would be a bear to paint in 1/72 scale. Does anyone know of any small-air-force schemes, other than the Czech Republic, for the Z-142?)

The large decal sheet (11 cm by 19.5 cm) provides the national markings and serial number for a bewildering array of Slovenian and Macedonian aircraft. (a) Bell 412 S5-HKR 'Kranj', (b) Bell 412 S5-HGO 'Nova Gorica', (c) Bell 412 S5-HGC 'Celje', (d) Bell 412 H2-34 'Kranj', (e) Bell H2-35 'Celje', (f) Bell 412 H2-36 'Novo Mesto', (g) Bell 412 H2-38 'Nova Gorica', (h) Pilatus PC-6 L6-02, (i) Pilatus PC-9 L9-52 'Skofja Loka', (j) Pilatus PC-9 L9-51 'Ptuj', (k) Pilatus PX-9 L9-53 'Piran', (l) UTVA-75 S5-DCA, (m) Zlin 242 S5-DGG, (n) Macedonian Zlin 242 Z3-DCO 'VAM-103', (o) Macedonia UTVA-75 Z3-DCC, and (p) Macedonian Mi-8.

Markings provided national insignia, serial numbers, unit insignia, and inscriptions.

[Editor's note: Blue Rider BR801 contains decals for Slovenian Air Force 1991/92: (a) SA-324 Gazelle SL-HAA, (b) Bell 412 SL-HAB, (c) Bell 412SP SL-HAD, and (d) Agusta 109A SL-HDC. BR809 contains decals for Jetranger 'S5-HKM', PC-9 'S5-DPI', and 412 'S5-HMB'. These decals are available separately for £2.00 and £2.80 respectively. They are also available, plus the decals from the two Insignia articles, as BDP-205 for £5.00]

**Emblems of the Rising Sun: Imperial Japanese Army Air Force Unit Markings 1935-1945**, by Peter Scott. (1999) Hikoki Publishing Ltd., 16 Newport Road, Aldershot, Hants. GU12 4PB. £17.95. Softbound. E-mail: [hikoki@dircon.co.uk](mailto:hikoki@dircon.co.uk). Web Site: [www.hikoki.dircon.co.uk](http://www.hikoki.dircon.co.uk). Distributed in North America by Howell Press Inc., 1713-2D Allied Lane, Charlottesville, VA 22903-5336, USA.

Hikoki Publications is one of the lesser known, but more innovative, of the companies producing books for the aviation enthusiast. Their latest release, "Emblems of the Rising Sun" is a feast for both the mind and the eye. As the author states, "Some of the most colourful warplanes ever to see active service, the aircraft of the Imperial Japanese Army Air Force carried the samurai regard for brightly coloured armor and equipment into the twentieth century. The heraldic traditions of the warriors of ancient Japan found new expression as the emblems for all types of air units in the service of the Emperor."

Of the 128 A4-size pages, 104 are in color and there are, in addition, 80 b&w photos and innumerable tables. After a 9-page introduction and 5 pages of Orders of Battle ranging from Manchuria, China and Burma to the Home Islands, the author presents 32 pages of color drawings of tail markings by unit (Devices of Higher Formations, Sentai, Independent Companies, Direct Command Reconnaissance

Companies, Independent Wings, Auxiliary Battlefield Units, Air Training Division, Instructional Air Units, Training Units, Fighter Operational Training Units, Fighter Training Units, and Special Attack Units). Markings are illustrated for the Chutai of each unit, and the units are listed by number, type of aircraft used, and date of service. The next 57 pages presents color side-view drawings (3 to a page) of specific aircraft. Aircraft illustrated are (the number in parentheses is the number of side-views of the type): Kawasaki KDA-5 Type 92 Fighter (3), Mitsubishi Type 92 Reconnaissance Aircraft (1), Mitsubishi Ki-1 Twin-Engine Bomber (5), Mitsubishi Ki-2 Twin-Engine Bomber 'Louise' (3), Kawasaki Ki-3 (2), Nakajima Ki-4 (1), Tachikawa Ki-9 'Spruce' (4), Kawasaki Ki-10 'Perry' (5), Fiat Army Type 1 heavy Bomber 'Ruth' (2), Mitsubishi Ki-15 'Babs' (4), Tachikawa Ki-17 'Cedar' (1), Mitsubishi Ki-20 Super-Heavy Bomber (1), Mitsubishi Ki-21 'Sally' (15), Nakajima Ki-27 'Nate' (10), Mitsubishi Ki-30 'Ann' (5), Kawasaki Ki-32 'Mary' (3), Nakajima Ki-34 'Topsy' (1), Tachikawa Ki-36 'Ida' (2), Nakajima Ki-43 'Oscar' (12), Nakajima Ki-44 'Tojo' (9), Kawasaki Ki-45 'Nick' (9), Mitsubishi Ki-46 'Dinah' (11), Kawasaki Ki-48 'Lily' (9), Nakajima Ki-49 'Helen' (6), Mitsubishi Ki-51 'Sonia' (3), Tachikawa Ki-55 'Ida' (2), Tachikawa Ki-54 'Hickory' (3), Mitsubishi Ki-57 'Topsy' (2), Kawasaki Ki-62 'Tony' (8), Mitsubishi Ki-67 'Peggy' (7), Mansyu Ki-79 (3), Nakajima Ki-84 'Frank' (9), Kawasaki Ki-100 (6), Kawasaki Ki-102 'Randy' (3), Hawker Hurricane (1), and Curtiss P-40E (1). Each drawing has a caption identifying the unit, time, and location of the aircraft. If you find this list exhausting, I'm sorry, but I had to include it to demonstrate the thoroughness of the author's coverage. The final 24 pages are devoted to 80 b&w photos.

While the IJAAP is definitely outside the purview of the SAFCH, I thought it was import to review it here not only because the depth and thoroughness of the author's research, but also because the aircraft of the Sino-Japanese War and the Nomonhan Incident are of great interest to many SAFO readers.

"Emblems of the Rising Sun" can be unreservedly recommended to all aviation enthusiasts you appreciate a well-research work and also to those who like unusual color schemes.

Review copy provided by Barry Ketley of Hikoki Publications. Their next release, scheduled for Winter 1999, should appeal to all students of the small air forces: "White Eagles: The Aircraft, Men and Operations of the Polish Air Force 1918-1939" by Robert Peczkowski & Bartolomiej Belcarz.

**Imperial Japanese Army Aircraft Colour Schemes, Camouflage & Markings 1937-1945: Part 1. Aviation History Colouring Book #38.** Ian K. Baker, 31A Mercer Street, Queenscliff, VIC 3225, Australia. In the US & Canada available from Aviation Usk, PO Box 97, Usk, WA 99180. IN UK & Europe available from Mushroom Model Publications, 36 Ver Road, Redbourn, Herts AL3 7PE. "In attempting to seriously come to grips with the subject of wartime Japanese aircraft colour schemes, the modeller, illustrator or restorer soon uncovers an almost bewildering array of reported colours, varying shades of colours, and opinions about colours. And, yes, more colour problems and debates!! How come so many? In this regard I believe we have to allow for the over-enthusiasm effect which is what occurs when, accustomed to fixed colour standards and a name and number for every shade, such as the British, US and German aircraft industries used, we bring a too-keen exact-



ness to bear upon aviation colour archeology and its interpretation. The result is that we are likely to see significance in variations of a colour where, in fact, there was none. And in doing so, we conjure new colours out of what were actually no more than varying manifestations of the one colour. After all, the official requirement was probably simply for a camouflage of 'dark green' or 'light brown', or whatever."

Thus, Ian Baker continues his landmark study of Japanese wartime aircraft colors with two companion books on the Japanese Army aircraft and a book of color chips for Japanese naval and army aircraft. Together, the two first volumes total 14,900 words and 37 drawings and diagrams.

The first new volume consists 20 pages of text covering the following topics. (1) Imperial Japanese Army Aircraft before the Strike South & Pacific War. Colour Schemes & Markings; overall grey-green, Sino-Japanese War, camouflage on Army aircraft, Italian camouflage on IJAAF aircraft. Engine Cowlings & Propellers. National Insignia & other Recognition Markings on Army Aircraft; white fuselage tail bands, national insignia on Army aircraft, IJAAF unit markings, 'kill' markings on Army & Navy aircraft. Civil Registrations. (2) Imperial Japanese Army Aircraft 1942-1945. Colour Schemes & Markings: 1942-43 Camouflage, trainers, bare metal finish, anti-glare, hasty camouflaging, un-camouflaging. 1944-45 Camouflage: factory-applied camouflage, greens, greys & browns, dark blue, black-grey, "black-brown"/"dark grey-brown"/maroon-grey, overall dark scheme. Propellers & Spinners. Cabins & Cockpits. Walkways, Warnings & other Functional Markings. National Insignia & other Recognition Markings on Army Aircraft: white outlining, white 'bandages', frontal identification of friendly aircraft, white fuselage tail bands. Distinctive Unit Markings. (3) Colour Notes 1937-42. External Colours; The Italian Colours; Interior Colours. And (4) Colour Note 1942-45. External Colours. Hinomaru, Tailcodes, Unit Designs & Trainers etc. (5) Some Selected Books & References, with Remarks.

This book must be read with its companion (see below) which contains the drawings referred to in the text.

Review copy provided by Ian Baker of Aircraft Colouring Books.

**Imperial Japanese Army Aircraft Colour Schemes, Camouflage & Markings 1937-1945: Part 2. Aviation History Colouring Book #39.** Ian K. Baker, 31A Mercer Street, Queenscliff, VIC 3225, Australia.

Ian Baker mixes his usual collection of informative perspective and 3-view drawings to illustrate the color schemes and markings discussed in the companion book reviewed above. Aircraft illustrated are: AN-1, Type 92 Recon, Type 92 Fighter, Ki-2 Louise, Ki-10 Perry, Ki-27 Nate, Ki-15 Babs, Ki-32 Mary, Fiat BR.20, Ki-48 Lily, Ki-21 Sally, Ki-43 Oscar, Ki-44 Tojo, Ki-21 Sally, Ki-49 Helen, Ki-45 Nick, Ki-46 Dinah, Ki-51 Sonia, Ki-67 Peggy, and Ki-100. There are a total of 36 illustrations.

In these two books, the author makes a very impressive case for the colors he then presents as color chips in his next volume reviewed below.

Review copy provided by Ian Baker of Aircraft Colouring Books.

**Imperial Japanese Aircraft Wartime Colours, Aviation History Colouring Book #40.** Ian K. Baker, 31A Mercer Street, Queenscliff, VIC 3225,

Australia.

This is indeed a "slim" volume consisting as it does of only the covers. But, what it lacks in size, it makes up in information. Included are 20 color chips for Japanese wartime Navy and Army aircraft. Each color is accompanied by an informative note. For example, "1. Navy Grey [1] Nakajima light grey-green (based upon Landsdale research, computer matched to Munsell SGY 5/1, also matches colour chip identified as the official IJNAF 'Grey J3' in Model Art No.378) 'Ame-iro' variant. An overall finish found on Nakajima-built A6M (ZEKE/'ZERO') carrier fighter and, by implication, A6M2-N (RUFÉ) floatplane fighters. Faded to a much paler, more colour-less grey. Upon introduction of factory-finish dark green camouflage, a lighter shade of grey-green was generally applied to undersides (see colour 6). [Editor's note: The color chip is much darker than the 'grey' I've used on my models of Zeros.]

Another example: "3. Navy grey [3]. Mitsubishi pale olive-grey (based upon Landsdale research, computer matched to Munsell 7.8Y 5.5/2.5). 'Ame iro' variant. An overall finish found on Mitsubishi A6M (ZEKE/'ZERO') carrier fighters and quite conceivably was also the shade of overall light grey-green applied to Mitsubishi army aircraft built in the same 1941-43 period. Faded to a much paler, more colour-less grey. Upon introduction of factory-finish dark green camouflage, undersides continued to be this colour for a time before light grey (colour 5) was phased in." [Editor's note: It's strange that this is called a "grey" since the color chip is a light brown to my eyes.]

The author states, "It should be noted that because of the preparation time and materials involved, number 40 is a limited edition of just 520. Together, numbers 36-40 make a convenient and useful reference set, the like of which is not currently available in any other form. Some people missed out on the previous limited edition of RAAF colours (number 34) which sold out very quickly, so intending purchasers would be well advised not to leave it too long!"

These color chips (and the preceding volumes of Japanese Navy and Army aircraft) are a "must" for any modeler building models of Japanese aircraft in service with the IJNAF and IJAAF, or in the service of any of the small air forces that used Japanese aircraft.

Review copy provided by Ian Baker of Aircraft Colouring Books

**La Campagne de France (3e partie) Vers la defaite 5 juin-25 juin. Batailles Aeriennes #10.** Sarl Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 65FF.

This story of the last days of Battle for France follows the usual "Batailles Aeriennes" style; French text, lots of excellently-reproduced photos, tables, maps, and colorful side-view drawings. The titles of the chapters should give a good idea of the flow of the narrative: 4 juin: Le calme avant la tempete; 5 juin: Un deluge de fue sur la Somme; 6 juin: Les bombardiers ne passent pas; 7 juin: La fin de la ligne Weygand; 8 juin: Creer un nouveau front; 9 juin: Les Polonais entrent en scene; 10 juin: L'Armee de l'air debute son repli; 11 juin: La Seine est passee; 12 juin: Dure journee pour les "Glenn"; 13 juin: Les portes de Paris sont ouvertes; 14 juin: Pas de l'oie sur lea Champs-Elysees; 15 juin: Derieres missions avant repli general; 16-25 juin: La Fin.

Interspersed among these chapters are the order of battle of the l'Armee de l'air on 5 juin, a collection of contemporary color photos of French

aircraft, a list of French aces, "Fiches monographiques" on the Dewoitine D.520, Marcel-Bloch MB 174/175, and Douglas DB-7, and color side-view drawings of the D.520, DB-7, Hs 126, MS.406, Ju 88A, Curtiss H-75, & Breguet 695. Most of the photos are new to this reviewer who especially enjoyed the photos of the unusual Breguet 27 and Hanriot 182.

The uniform and modeling sections are again appropriate to the theme: "La Force Aerienne Belge en mai 1940" has 5 color drawings of Belgian airmen in uniform. "MS 406: 1/72eme Hasegawa/Hitech" has 12 color photos of a beautifully-finished model.

"Vers la Defaite" is an excellent addition to Lela Presse's series on the air campaigns of WWII and is recommended to all students of the war in the air in WWII, regardless of their knowledge of the French language. [Editor's note: this entire series would be more useful if a separate English text were available. If this consisted only of a translation of the text and photo captions, it would be inexpensive to produce and would greatly add to the sale of the book.]

Review copy provided by Michel Ledet of Lela Presse.

**French Aeroplanes before the Great War, by Leonard E. Opdycke.** Schiffer Publishing Ltd., 4880 Lower Valley Rd., Atglen, PA 19310. \$59.95 plus \$3.95 postage.

Leo Opdycke, publisher of WWI AERO and a long-time friend of the SAFCH, has finally published his magus opus (for the Latin-impaired, that means "great work" not "big penguin") on the French aircraft built, or rumored to have been built, before WWI. In 288 pages LEO has collected a menagerie of strange and exotic birds, some that flew and many that didn't get off the ground. It amazing how many different ways wings, tails, and fuselages can be put together.

Chapter One, a mere 5 pages long, lists "The Pioneers" by year starting in 1678 and going up to 1888. Chapter Two, a mind-boggling 263 pages, describes "The Aeroplane" in an alphabetical listing by name of the designer or firm from Abrie-Calas to Zodiac. Some aeroplanes get a short entry, such as "Dernaut: A monoplane of 1980", while others such as Bleriot cover 16 pages with 52 photos and 5 scale side-view or 2-view drawings. You'll find many familiar names such as Amiot, Anzani, Besson, Clerget, Coanda, Dorand, Farman, Hanriot, Leveque, Morane, Nieuport, Oliver, Santos-Dumont, Schreck, Tellier, as well as many, many unfamiliar names. Most aircraft are illustrated by one or more photos. The publisher says there are a total of 840 photos, and I'll take his word for it. The reproduction of these old photos is amazingly good. I suppose many were on glass plates and they are sharper than most modern photos. A very few are poor, probably copies of very old, very fuzzy copies.

Perhaps the photos in this book will inspire the more adventurous modelers to scratch build some of the aerodynamic curiosities illustrated in this book. They would certainly be a pleasant antidote to the models of never-left-the-drawing-board Luftwaffe aircraft that occupy the stock lists of many manufacturers of injection-molded kits today. This book is recommended to all who like exotic airplanes (excuse me, aeroplanes). The price, either on a per photo or per pound basis, is very reasonable. If you don't think so, you haven't had to pay for any text books for your children in college.

Review copy provided by the publisher.



After a year since publication of the last issue, *Gaceta de la Aviación* #25 September 1999 comes with lots of good coverage of historical facts and news of new acquisitions of the Fuerza Aerea and the Aviación Naval. This magazine, the official publication of the Academia de Historia Aeronáutica del Uruguay, is printed in good glossy paper with 48 pages plus covers. On the front cover is a painting of an FAU SNC-1, and the center pages feature painting of the indigenous Uruguay IV of Francisco Bonilla and the Castaibert with which 1st Lt Cesareo Berisso won the first air race between Buenos Aires and Mendoza, Argentina, in 1916.

Articles with photos and text of interest to SAFO members are: A note about the acquisition of the two Jetstreams MK II for the Navy which arrived on 30 January 1999 (A-875 (ex XX485 and A-876 (ex XX490) including one photo of A-876. A note about the Museo Aeronáutico's restored Castaibert #1 "Raid" of B.A. Mendoza (with photo) and the PT-19 675 (marked as 634 which was destroyed in the fire of December 1997). This aircraft was restored by the Aeronautical Museum of Chile and donated to the Museo. (Editor's note: See photo on page 7 of this issue of SAFO).

Also included is a note (with photo) on the two Raytheon Beech Baron B-58 (UB-58) for the FAU which were received on 7 December 1998: 790 (TH1860) and 781 (TH1863). An other article describes the emergency landing, on 16 November 1955, of F-51D FAU 273 (with the emblem of Tom & Jerry on the tail) as told by the pilot, MAJ Carlos Piriz (2 photos). A one-page article describing the ferry of 10 Cessna U-206H which arrived on 18 December 1998 (FAU numbers 710 to 719; manufacturer's numbers 206-08003 to 08012). A note about the 3 UH-1H (plus 2 for spare parts) donated by the US Government to the FAU (Uruguay paid only for the overhaul of the 3 flying machines at US \$250,000 each). They were received on 21 July 1998 (FAU 053 ex 66-01058, FAU 054 ex 66-16501, FAU 055 ex 67-17296).

Completing this very interesting issue an article "Tragedia Salvamento" which describes, in detail, the events occurring on 15 November 1963, an Navy SNJ (A-254), on a flight from its base at Laguna del Sauce to Montevideo (for the Air Parade) crashed into the Rio de la Plata Estuary. Both crewman parachuted safely, but one of them immediately sank into the cold water. The following hours were filled with heroism and tragedy with the participation of a PBM and the loss of a H-13G and its two crewmen. This article is written by Luis Chiapparro (the co-pilot of the PBM). Four photos are included (PBM A-811, SNJ A-254, SNB A-212, and H-13G BR-002).

Last, but not least, is an incurable article with 16 pages devoted to our nine Curtiss Falcon SNC-1. This fantastic research work is by my friend Nelson P. Acosta. Included are 20 photos and a 3-view drawing of E-205 by another friend, Pedro Otto Cerovaz.

(Author's note: I can recommend the work of my friends to any publisher in the world. Mr. Acosta has written many articles on Uruguayan aviation that are ready for publication and Mr. Cerovaz (& sons) can make excellent profiles for any aircraft past or present. My address below can be used for communication with both specialists.)

Eduardo Luzardo (SAFCH #1383), Picardía M.267 S.37, 91001 Barros Blancos, Uruguay.

**Insignia, Issue #12 Summer 1999.** Blue Rider Publications, 43a Glasford Street, London SW17 9HL, UK. E-mail: insigniamag@yahoo.com. Web page: <http://members.xoom.com/insigniamag> Although each issue of INSIGNIA magazine is abstracted in SAFO, the arrival of a sample issue provides the opportunity to review this excellent magazine in detail.

Each issue of Insignia consists of 36 A4-size pages printed on high-quality glossy paper with full-color covers. The front cover presents color side-view drawings of four drawings that appear inside in b&w. A very nice touch is the inclusion on the cover of the 9 national insignia of the nations covered by articles in the issue as a sort of "table of contents". The other three pages of the cover are also devoted to color complementing the articles inside. For example, this issue has color drawings of the insignia of the various Bosnian Air Arms, a "What If?" piece showing possible future Serbian national insignia, a color 5-view drawings of the UTVA BC-3 Trojka, color drawings of the national insignia discussed in a letter, and the national insignia of the various Rhodesian air forces (although the article had to be held over to the next issue because of lack of space in this issue).

Articles are: "Bosnian Air Arm Update" 6 pages on the aircraft used by the Bosnian & Croat Federation Air Force, Republic of Serbian Krajina Militia, and the Bosnia Serb Republic Air Force including listing of individual aircraft, 3 photos (Republic Srpska AF Soko Galeb and Oraos), and 8 side-view drawings [(Mi-34, Mi-8 (2), UH-1H (3), & Gazelle (2)).

"Air Force Insignia #18: Turkey" 6 pages including listing of aircraft used by Air Force and Navy 1918-26, 5 photos [Gotha WD-2 (2) & WD-13 and Vultee V11-GTB (2)], drawings of 10 forms of the national insignia, and 10 side-view drawings (with

scrap views of insignia on the wings) [Gotha WD-2 & WD-13, Nieuport 17, Spad 13, Junkers R-2 (2), Caudron C.59, Curtiss Hawk II, and Breguet 19 (2)].

"Serial Systems #2: Chile - The early years" 4 pages including listing of individual aircraft by s/n, one photos (Avro 504K) and 10 side-view drawings [Bleriot XI, SE5a (2), Airco DH9, & Avro 504K (6)].

"DAR Aircraft: Part 4" 2 pages of multi-view drawings of the DAR-10A Bekas prototypes I and II.

"Letter and Questions" 4 pages including a letter on Sun Yat-sen's private air force in Canton 1922-1925 and a long letter on a variety of topics (Chinese air force insignia from the time of the founding of the Republic in 1912 including a discussion of the Cochin China Air Force. "There was no such thing (Cochin was a native state in southern India, and Cochinchina a province in French Indochina). I first saw this name used in the November 1957 issue of the November 1957 issue of the Royal Air Force Flying Review, and British authors seem to have been copying it from each other ever since. The correct name was the National Government of China Air Force." This part of the letter is supplemented by 3 color drawings of insignia (Chinese Republic 1920-21, Reformed Government of China 1938-1940, and National Government 1940-45. The letter goes on the discuss an insignia adopted by the Polish 1st Corps aircraft that consisted of a "square divided diagonally into two triangles, amaranth and white" and predates by nine months the national insignia used at Warsaw, Krakow, and Lwow. However, there is no evidence that their aircraft carried any insignia other than the Imperial Russian roundel. Then there's a long discussion of insignia used on early Ukrainian aircraft. This is accompanied by 4 side-view drawings [Nieuport 11/16, H-B C.1, & LVG C.VI (2)]. The last item in this letter is on the "so-called Russian Liberation Army Air Force" in which the author concludes that the insignia illustrated in SAFO of June 1994 is suspect and that he would like to see "solid photographic evidence for any insignia supposedly used by ROA aircraft".

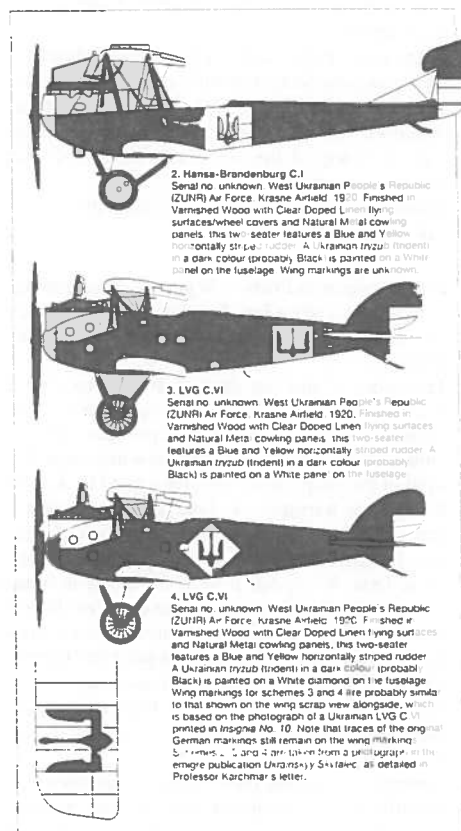
There is a one-page 3-view drawings of the Asen Jordanov-1, one of the first military aircraft built in Bulgaria.

"Product Reviews" has 3 pages reviewing three Albatros publications, two new books on the WWII Croatian Air Force, "Chinese Aircraft 1951-1997", "Eyes for the Phoenix", Skyways & WWI Aero magazines, and "Slovenska Armada 1939-1945". The one page "Reader's Photographs" section has a photo of Lithuanian Anbo-VIII and two Bulgarian floatplanes (Friedrichshafen FF33A and Rumpler 6B-1. A complete list of Blue Rider decals and publications and an "Insignia Volume 3 Index" complete this issue.

Last, but not least, there is a decal sheet (7 cm by 9 cm) that gives the markings for the Bosnian and Croat Federation Air Force Mi-8 and UH-1H. The high quality of Blue Rider decals needs no amplification here.

Insignia Magazine subscription rates are £24.00 surface mail world wide. Payment by Mastercard/Visa, Eurocheques, US/Canadian Postal Orders or International Money Orders. They also accept US currency. If payment is by US dollar cheque add an extra £5.00 to cover UK bank charges.

[Editor's note: The single sample copy of Insignia #12 is available from the SAFCH Sales Service on a first-come-first-served basis.]



"During the first days of September 1999, the Fuerza Aerea Uruguayana received the first two Aermacchi SF 260EU (FAU 610 and 611) of a total of 13 purchased directly from the Italian manufacturer. These aircraft arrived in Montevideo Harbor and were assembled at the Brigada Aerea I (Carrasco). The first flight to place during the third week of September. All these trainers will be assigned to the Military Aeronautical School (Escuela Militar de Aeronautica) at Base Aerea Gral. Artigas in Pando, replacing the four T-41D Mescaleros and twelve T-34A/B currently on strength at this institute. There is Bolivian interest in purchasing some of the T-34s.

"The Museo Aeronautico at Montevideo is slowly recovering from the destructive fire of December 1997. Before the Director, Col. Angel Hernandez, retired, he had restored the main exhibition hangar and completely rebuilt the historic Castaibert monoplane. He also obtained the cooperation the Director of the Chilean Museum to completely rebuild the PT-19 formerly stored in the Uruguayan Museum facilities. This classic aircraft was ferried from Montevideo to Santiago and back in a FAU C-130B.

"The new museum director, Col. Heber Bustos, is rebuilding the aircraft collection: The only Aero Commander that served with the FAU #501 is now part of the exhibition. In addition, T-33 FAU #202 is awaiting delivery by road from Brigada Aerea II (Durazno) and a Mentor will be a future addition. Since the new Direction considers the Museum is a place to display all of Uruguayan aeronautical history, he has asked Navy Aviation authorities to donate aircraft to the museum. Thus, it is very possible that we will see not one, but two aircraft, representing the Aviacion Naval: a Tracker and a Wessex 60."

Eduardo Luzardo (SAFCH #1383), Picardia M.267 S-37, 91001 Barros Blancos R.8 Km.22,500, Uruguay.

Photo Captions for photos on page 144 (All photos by Julio Salvo via Eduardo Luzardo.)

During their service life, a number of Canadian-built PT-26 were converted to PT-19 configuration by Uruguayan personnel. PT-19 #634, which was on display at the Museum, was totally destroyed in the great fire of 4 December 1997. However, PT-26 #675, which had been in storage, in poor condition, at the Museum since 1990, escaped the fire and was restored and painted to resemble the lost PT-19 #634 by the friendly staff at the Museo Nacional de Aviacion de Chile. These photos show the new #623 on display in the repaired hangar at the Museo Aeronautico in Montevideo. (In the background of the lower photo can be seen the Blériot XI reproduction.)

"Over the years there have many incorrect translations of Yugoslav aviation organizations have appeared in print. The most frequently used term is 'Royal Yugoslav Air Force'. The actual name of air force of Royal Yugoslavia is 'Vazduhoplovstvo vojske' which best translates into 'Military Aviation'. In post-war, Yugoslavia's aviation was called 'Ratno Vazduhoplovstvo' which best translates as 'Warfare Aviation'.

"However, the term 'Air Force' can be used in translation for one of the names of Croatian aviation in WWII. Three names were used: 'Zračne snage' or 'Air Force', 'Bojno Zrakoplovstvo' or

'Combat Aviation', and finally 'Vojno Zrakoplovstvo' or 'Military Aviation'.

"Unfortunately, even in the countries of the former Yugoslavia, many enthusiasts use the incorrect titles. I don't say that above translations are perfect, but they are more suitable than others that have appeared in print."

Bradic Srecko (SAFCH #), P.F. 39, 37000 Krusevac, Srbija.

[Editor's note: This letter was received in June 1999. However, since I did not receive the Blue Rider book until November 1999, I've held off printing it until now. Readers without a reading knowledge of the Estonian language should not put off from buying the Blue Rider book because it is 'unreliable' in some areas. And, buying the Blue Rider book should not stop them from obtaining the Estonian-published book when it becomes available. If we threw away all our books that contain some unreliable information, our libraries would be empty.]

"Some weeks ago, I received the Blue Rider booklet on the Estonian Air Force 1918-1940. It looks excellent, but the contents are not reliable. Last year, Blue Rider had asked me to assist in the preparation of their booklets on Latvia and Estonia. I passed this request on to my friends in both countries and left it up to them whether they would assist Blue Rider. (They replied that their research

is far from complete. I've been in the Estonian State Archives and was most surprised on what is still there - and in excellent order. Damn the Soviets, but they knew how to arrange archives.)

"I am, however, cooperating with the Estonians on a book on the EstAF. They asked me to write an English-language summary. In doing so, I found that my article in AE #18 was not useable. The general ideas are 'alright, but so many of the details have changed that it is out of date. However, it was a good basis for the Estonians to work from. I've encouraged them to provide ample bilingual text (Estonian/English) for the photo captions and there are lots of tables. The title will be something like: 'Heaven, Men, and Machines'.

"P.S. My comments about the Blue Rider Estonian booklet do not apply to their booklet on the Lithuanian AF. This booklet is, more or less, a translation of a very good Lithuanian book published a few years ago. I have the original Lithuanian version and the it is excellent."

Frits Gerdessen (SAFCH #12), Fijnscheerderstraat 12, 4204 ES Gorinchem, Nederland.

"The enclosed photo appeared in 17 December 1998 issue of 'The Baltic Times', a weekly newspaper published in Riga, Latvia. Whose chop-her is it?"

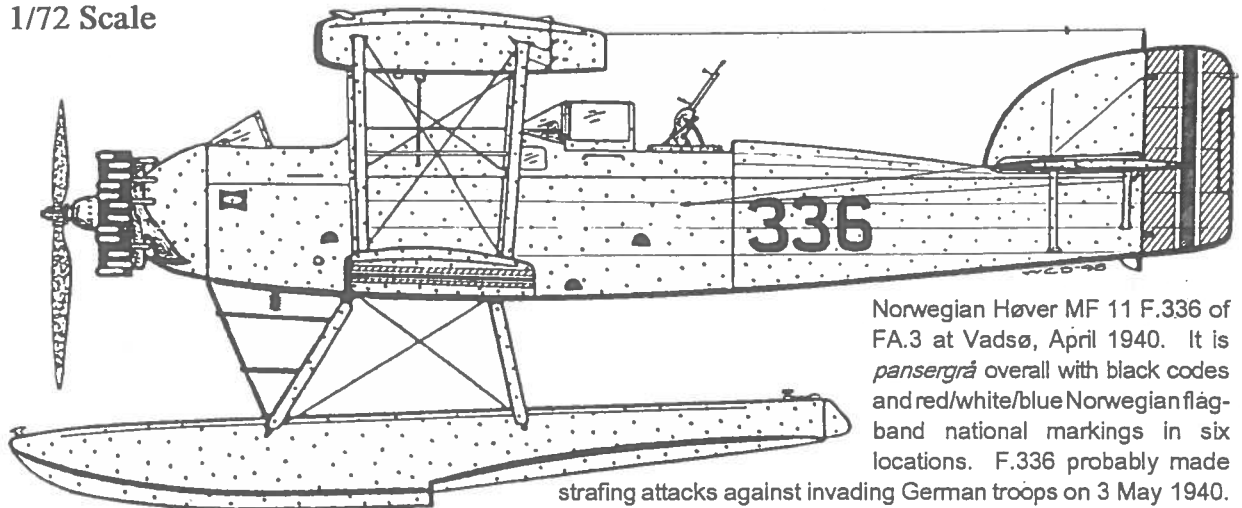
Ted Koppel (SAFCH #118), 3520 N. Rolling Rd., Baltimore, MD 21244-2207, USA.



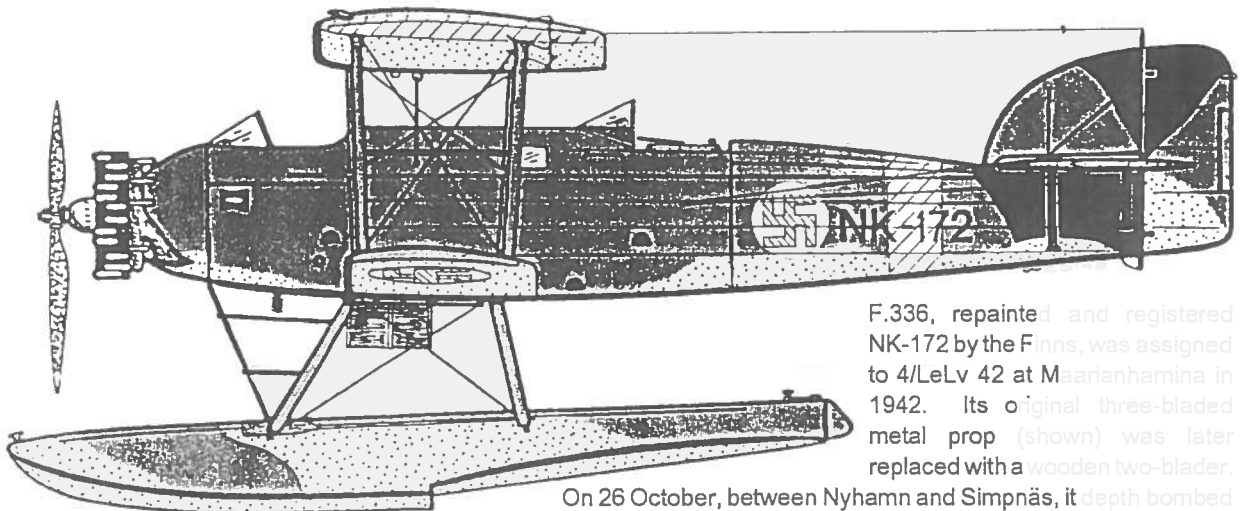
**SANTA FOR A NEW MILLENNIUM:** Sleighs and reindeer are too slow for life in the 21st century. Photo by A.F.I.

# Høver MF 11 in Profile

1/72 Scale



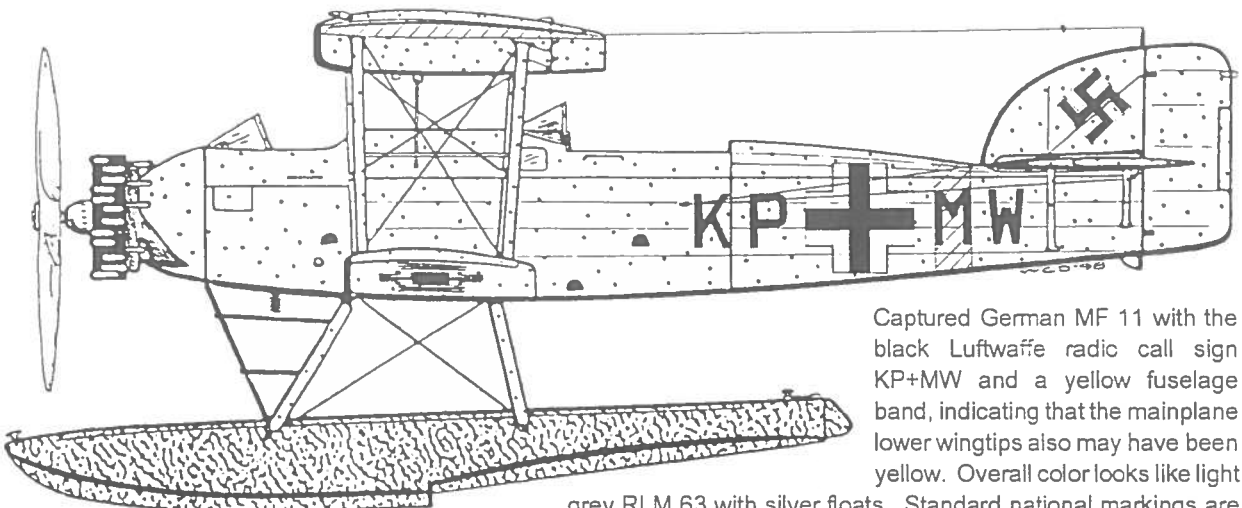
Norwegian Høver MF 11 F.336 of FA.3 at Vadsø, April 1940. It is *pansergrå* overall with black codes and red/white/blue Norwegian flågband national markings in six locations. F.336 probably made strafing attacks against invading German troops on 3 May 1940. F.336 fled to Finland along with F.310 and F.346 on 8 June 1940.



F.336, repainted and registered NK-172 by the Finns, was assigned to 4/LeLv 42 at Maarianhamina in 1942. Its original three-bladed metal prop (shown) was later replaced with a wooden two-blader.

On 26 October, between Nyhamn and Simpnäs, it depth bombed the Soviet submarine SC-307 without success. It was retired

from Finnish service in late 1944 with about 380 hours on its clock. Camouflage is standard Continuation War olive green and black above with light blue below. Floats appear to be light blue with olive green camouflage. Yellow Eastern Front colors were displayed under the upper wings and in a band around the aft fuselage. The Finnish code NK-172 was painted in black over this band; to starboard the letters are green on black camo. Note the depth charge and the paddle lashed to the float struts. The NK-coded Høvers were nicknamed "Norjan Kalle" by the Finns.



Captured German MF 11 with the black Luftwaffe radio call sign KP+MW and a yellow fuselage band, indicating that the mainplane lower wingtips also may have been yellow. Overall color looks like light

grey RLM 63 with silver floats. Standard national markings are probably carried in the usual positions. Note detail differences.

